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THE HISTORY OF MEDICINE AS A SUBJECT OF TEACHING AND RESEARCH.*

By Dr. Arnold C. Klebs, Lausanne, Switzerland.

In this country no definite place in the scheme of medical education has yet been assigned to the history of our art and science. I shall endeavor to plead its cause in the light of past experience and present achievement. Having taken pains to study the subject during a prolonged residence in Europe, where it has received special attention, I shall try to bring out what seem to me the main features of the work and efforts there. I may state at the outset that, in doing so, I do not wish to recommend blind imitation. On the contrary, I am convinced that in this country an altogether different course might be taken to great advantage and that experience gained abroad can only be used as a pathfinder.

The value of medical history as a desirable feature in medical education has nowhere been more strongly emphasized than here in America by Dr. John Shaw Billings. He was no friend of "the languid scientific swell who thinks it bad style to be practical," but neither did he agree with the physicians who belittle, as interfering with practical efficiency, any effort towards a broader culture, a deeper knowledge and a better understanding of the higher aims of their art and science. Not being nor wishing to be a historian of medicine in the technical sense of the term, although having done fine work in this as in so many other fields, he used the inspiration and the lessons of that history, which he mastered as few have done, for the solution of the problems then before him. The enormous share he has had in the upbuilding of a higher medical education in this country will only be fully appreciated when his quiet activity has become better known. The study of the history of medicine and its promotion as a distinct feature of medical education he frequently recommended, discouraging, however, certain methods then advocated and pursued in this direction. In 1883, in addressing the Medical and Chirurgical Faculty of the State of Maryland, he urged the cultivation of local medical history of city and state by that body. Doctors and surgeons, he recommended, would do well to keep historical books on their shelves, and might, without prejudice to their professional capacity, "read something else besides manuals and textbooks." Even at this early date he expressed himself as follows: "It is to be hoped that the scheme of higher medical education which your university is about to organize will include instruction in bibliographical and historical methods as well as in those of the laboratory and clinic."

The late Dr. Eugene F. Cordell, in his presidential address in 1904 at the 105th anniversary of the same faculty, could show how far this hope has materialized, that excellent work is being done at the Historical Club of The Johns Hopkins Hospital, but that only three universities, Pennsylvania, Maryland and Minnesota, have provided a full course of lectures on historical medicine, which seemed to him a very meagre result. This address was commented upon in an editorial in the "London Lancet," strongly endorsing the views expressed in favor of the study of medical history, and adding, as consolation to Dr. Cordell, that his advice needed even more attention in the British Isles, where no university or teaching school of medicine dealt with the subject in any way.

Ten more years have almost elapsed since then, and when we look around now it cannot be said that the study of the

* Read at a meeting of The Johns Hopkins Hospital Historical Club, Dec. 8, 1913.

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history of medicine has made very decided progress as a feature in medical education. The number of academic courses on this subject is, however, no exact measure of the interest manifested in the subject itself. Their establishment depends largely upon personal and local opportunities, and, where the subject has become a feature, it cannot be said that it enjoys a very great popularity, here or abroad. I believe, however, that this is due more to an inadequate method of procedure than to a lack of interest. That such an interest is continually on the increase hardly needs demonstration. While some years ago a historical consideration of a medical subject was practically never heard of, now we see articles appearing on every side which are evidence that a good deal of historical thinking and studying is in progress. In this relation it might be noted that while we find hidden in special journals and archives abroad masses of valuable and interesting data derived from historical research, similar articles when intended for the profession and appearing in general journals have always to take a back seat and are usually put at the end and in the smallest available type. This is in strong contrast to the procedure here and in England, where one sees not infrequently such historical essays appearing in the most prominent places.

Although by no means all American and English writings can bear comparison with those of an Osler, it is nevertheless interesting, and applicable to a number of English essays, to note what the great German historian Sudhoff has said in the conclusion of a review of Osler's "Alabama Student": "It seems to me that there is a more *echt historischer Geist* in these biographic essays by an English clinician than in many a learned medico-historical work of a German professional historian."[1] It is just this truly historical spirit, recognized by Sudhoff and so brilliantly applied by himself and Neuburger, which is a common characteristic of the historical utterances of many of our physicians. It pervades the speeches and essays of Welch, Weir Mitchell, Abraham Jacobi, and many of their juniors, and it especially formed the quintessence of the gigantic life work of Billings.

I believe there is ground for congratulation and that we have a fertile soil, which, properly tilled and sown, will some day bring forth a bountiful harvest. The student abroad enters the medical school better prepared intellectually than he does here; this is what is being more and more recognized by our educational authorities, and on the success of reform in this direction will depend to a large extent the ultimate, more general establishment of a higher medical education. Only on such a ground can historical medicine thrive and, in return, benefit medical education and medicine in general. The opportunism which has so far characterised the attitude of medical education towards historical medicine will yield to a purposeful determinism as soon as a better preliminary preparation induces the necessary receptiveness in the students.

The question as to whether the moment has come to agitate the subject cannot be answered in a general way. I believe it has come for certain schools, and others will follow when the fundamental principles are once established and a start is made. In our time the desirability of a broader culture for the physician fortunately needs no special pleading. That this is powerfully promoted by historical knowledge and method is also recognized by many. But as to how this latter is best furthered and utilized to the greatest advantage for the pupil and teacher and for medical art and science in general is a question which I believe has not often received the consideration it deserves.

To start with first principles, it must be admitted that we often overlook the obvious fact that every medical man, consciously or unconsciously, bases his conceptions and their application on those of his predecessors, and that whenever we acknowledge this indebtedness we are to a certain extent using the historical method, for it is fundamentally unimportant whether our predecessors lived five or five hundred years ago. This axiom, in the present case, finds its practical expression mainly in bibliographic search, which every medical man has to take up sooner or later if he wishes to add his share to the sum of knowledge which determines progress. Here again Billings has given pertinent advice when he said (London, 1881) that since there is no lack of men who have the taste and time to search the records of the past, the man who has opportunities of making experiments or observation for himself wastes his time to a certain extent if he tries to do bibliographical work so long as he can get it done for him. "Yet," he adds, "he should know how to make the search, if only to enable him to direct others," advocating also instruction in bibliographic methods. In our days, and especially through the labors of Billings and Fletcher, this task has been greatly facilitated, but none the less few physicians know how to use systematically the aids provided by wise forethought and an incredible industry. Here practical instruction of the student would bear good fruit and demand but little time. He could learn how to select proper references and to give them with accuracy, and, what is still more important, learn to eliminate the useless ones. As Oliver Wendell Holmes said, "there is a dead medical literature, and there is a live one. The dead is not all ancient; the live is not all modern." To distinguish the one from the other is the task of the teacher. It takes long and intimate acquaintance with the matter to develop the necessary judgment, but much useful guidance can undoubtedly be conveyed to a student.

While thus an acquaintance with the literature and an acquisition of bibliographic technique is of primordial importance to any educated physician and can be promoted usefully by appropriate instruction, it forms but a part of that true erudition which is attainable only by a deeper knowledge of the historical evolution of our art and science. A certain kind of erudition, it must be admitted, may superinduce a one-sided philologic and antiquarian standpoint, or, as Billings put it, lead the student off "from his direct research into the many attractive by-paths of quaint and curious speculation."

[1] Mittheil. z. Gesch. d. Med., etc., Leipz., L. Voss, 1909, viii, 448.

This danger must always be kept in mind and be guarded against, but it is no valid argument against erudition as an objective of medical education. "While erudition certainly creates nothing, it leads to creation," said Verneuil.

History primarily demands facts which have to be sought for. Search for them must be undertaken, however, without exclusive reference to the results. There is no reason why medico-historical research should not be regarded in the same light as is any other form of research. When this is once fully recognized the needed workers as well as the means ought to be procurable. Both have been found abroad; they surely can be found here.

The lukewarm interest shown heretofore in historical medicine as a feature in the scheme of medical education ought not to discourage further efforts. If a distinct place were assigned to it in the medical curriculum it could, by its achievements, by the influence it would exert on students and teachers of all departments, form one of the most useful and inspiring features in the whole scheme of medical education. Some such influence is surely needed. We are cultivating too much the purely scientific aspects of medicine; we are depending too exclusively on physics and chemistry to explain life in its various manifestations. Sir Oliver Lodge only lately[2] has sounded a note of warning which we also may heed. "Biology," he said, "is an independent science, and it is served, not dominated, by chemistry and physics." We physicians, who are applying the lessons of biology, must remember that physical science cannot explain everything; that it furnishes only "proximate explanations." The "philosophic scepticism" voiced by William James, Bergson, and others, gains converts and has led to "a mistrust of purely intellectual processes and a recognition of the limited scope of science." Such a mistrust again finds expression in antagonism to scientific medicine in the serious attention paid by a large public to certain methods of healing not within our scope. Legislation alone cannot counteract these tendencies, and one who has his finger on the pulse of the times will realize that these things connot be dismissed as passing fads or fashions, or the like, but that there are causes beneath them for which, to a certain extent, we are ourselves responsible. Anything that will, so to speak, humanize our art and science, will not only make us happier, but more satisfied with and proud of our profession and its aims, more inspiring to our students, better friends and helpers to our patients. With history as helpmate we apply "not the experience of one man only or one generation, but the accumulated experience of all mankind in all ages," to use John Herschel's phrase.

REVIEW OF THE LITERATURE.

It is obviously impossible to give anything but a most summary review. To the student who wishes to inform himself in detail about the general historical literature, the following works are indispensable: Choulant (L.), Biblioth. medic.-hist., Lips., 1842, with the additions by Rosenbaum (Halle, 1842); Pauly, (A.), Bibliographie des sciences médicales, Paris, 1874; Pagel (J.). Hist.-med. Bibliographie, 1875-1896, Berlin, 1898; furthermore the library catalogues of the Bibliothèque Nationale de Paris, catalogue des sciences médicales, 3 vols., Paris, Didot, 1857-89. All these works except that of Choulant have the common defect of not providing an alphabetical index of authors and subjects, which makes a search most difficult. This difficulty has been most happily obviated in the Index Catalogue of the Library of the Surgeon General's Office by the introduction, by John S. Billings, of alphabetically arranged subject key-words as well as the author's names. For the modern literature information is supplied by the Index Medicus and the Mitteilungen zur Geschichte der Medizin, etc., Leipzig, the latter giving excellent reviews of the literature since 1902. This has also been done by the "Janus," Amsterdam and Leyden, on a smaller scale, since 1896.

The most marked expression of the growing interest in the historical side of medicine is to be seen in the increasing number of articles and books dealing with it. There is an abundance of pleasantly written papers, not particularly profound and often inaccurate. They can only be of real use when the authors are careful enough to state their sources. The excellent custom of prefacing their work with a historical review has been more and more adopted by authors on general and special subjects. In this country biography has probably furnished the theme for the greater part of the literature produced. It is the field most happily cultivated by Osler (The Alabama Student, Linacre, etc.), and from it has sprung Kelly's imposing "Cyclopedia of American Medical Biography." Billings, Fletcher, Green, Bolton, Weir Mitchell, Garrison, Cushing, Thayer, Roswell Park, Shattuck, Fitz, Locy and others have given us admirable essays on many interesting phases in the evolution of medical thought and practice. Of textbooks worthy of the name only one so far meriting this name has appeared here, the excellent translation by H. E. Handerson (1889) of Baas' "Grundriss" (1876). Judging from the advance sheets of the modestly named "Introduction to the History of Medicine" kindly put at my disposal by the author, Dr. Fielding H. Garrison, we shall soon be in possession of a home product, which, as regards accuracy, lucidity and mode of presentation, will rival the best of other lands. Here for the first time modern medicine is fully dealt with, occupying more than half the volume. Those stupendous creations of Billings, the Surgeon-General's Library, its Catalogue and the Index Medicus, which the whole medical world envies us, give an unparalleled basis and incentive to solid historical work, not yet sufficiently appreciated here.

In Europe the serious and systematic study of the history of medicine began in the eighteenth century. During the preceding centuries, especially since the invention of printing, what may be called historical work consisted in commentaries on the works of those ancient authors which had appeared in multiple editions. In several of these biographical notes about famous physicians were given, which practice was also followed in certain separate collections of woodcut and engraved portraits.

Among these some deserve an interest even now, notably those of Boissard and Theodore de Bry, Frankfurt, 1597-8; of Sambuco, Antwerp, 1574 and 1603; the Icones Reusneri, Strassburg, 1587, and several later ones.

With the end of the seventeenth century, considerable collections of antiquarian interest, books, pictures, gems, coins and other curiosities, had accumulated in the homes of some medical men. Several of these later on laid the foundations of the great museums and libraries of which we are still the beneficiaries. The impetus to sift and study this material and to put it before a greater public issued from two widely separated towns, Geneva and London. Dr. Daniel Le Clerc (1652-1728), son of a physician, a fine Greek scholar, devoted himself very early to the study of the ancients. His "Histoire de la Médicine" appeared as early

[2] President's address, British Assoc., Birmingham, Sept. 11, 1913.

as 1696 and saw many later editions (the best being that of the Hague, 1729), which are profitably consulted to this day. His work, however, covered only the period of ancient medicine up to and including Galen. The learned Dr. John Freind (1675-1728) issued in 1725 his "History of Physick, from the time of Galen to the Beginning of the Sixteenth Century," thereby continuing the work begun by Le Clerc. Freind's book contained important contributions to the subject of Arabic medicine. For the understanding of the periods treated by him later research of the original texts has considerably modified our conceptions. In spite of its deficiencies Freind's book has undoubtedly acted as a stimulus for similar undertakings, especially among English speaking physicians. Several special monographs as well as essays and books on general medical subjects betray this influence. "Mead's Medicina Sacra" (1749) and J. Coakley Lettsom's "History of the Origin of Medicine" (1749), followed by the biographical collections of John Aikin (1780) and Hutchinson (1799), are probably the most notable English contributions of that period. Directly inspired by LeClerc and Freind was J. H. Schultze's scholarly "Historia Medicinæ" (1728), not nearly as connected and readable a work as its two prototypes, but containing a wealth of antiquarian and especially numismatic information.

The most marked and lasting influence in favor of the historical method in medicine was probably exerted by Boerhaave (1668-1738) and systematically applied by his greatest pupil, Albrecht von Haller (1708-77) in his edition of Boerhaave's "Methodus Studii Medici" (1751), in his own "Bibliothecæ" (anat. 1774-77, chirurg. 1775, med. pract. 1776) and in the "Artis Medicæ Principes" (1769-1772).

Probably no one before and few after him have so successfully utilized in practical work the teachings of history as this founder of modern experimental physiology. To Haller the discoveries and errors of his predecessors and contemporaries served as guidance and control in his own labors, and he did not shrink from the gigantic task of collecting, classifying and annotating all the available literature. Although he has not written a systematic work on the history of medicine, the lesson of his works and teaching, as well as his bibliographic collections, have done signal service in introducing to succeeding generations the advantages of historical thought and method, not the least of his many achievements. For over a hundred years medical historians and bibliographers have benefited by the work of this great man.

Of the historical treatises of the end of the eighteenth century and the beginning of the nineteenth, a few may here be mentioned. Chomel wrote in 1762 an excellent little book on the medical history of France, thereby popularizing local historiography, in which branch some tentative efforts had been made before him. In the seventies Antoine Portal began his great history of anatomy; and Moehsen, the physician of Frederic the Great, published a medical history of Brandenburg and several other important contributions on various historical subjects (medical numismatics and iconography). Here we should also mention the historical dictionary by Eloy (Mons 1778, the first edition of 1755 was wholly inadequate), which brought together a great mass of biographical information. It formed the stock and basis of several later French works.[3] Other excellent treatises were furnished in Germany by Gruner (1774), Blumenbach (1786) and Ackermann (1797), but it was the well-known work by Kurt Sprengel (1776-1833)[4] which inaugurated the epoch of applied research in medical history. The interest of the previous epochs had been centered chiefly in classical Greek, Roman and Renaissance medicine; now, with fresh discoveries of general historians, archæologists and others at hand, new sources for a deeper and wider knowledge were opened and medical students availed themselves of these new opportunities. Sprengel attacked the subject from diverse philosophic points of view or ranged it in distinct epochs and schools, or in relation to the various branches of the healing art. Certain diseases, as, for instance, syphilis, leprosy, the plague and other epidemics, were separately studied.

The principal exponents of this phase of literary work may be indicated in the annexed list,[5] which, however, makes no claim to completeness and can only serve to mark the cornerstones on which the present generation continues to build.

The abbreviated titles in parenthesis indicate only the general trend of a given work with the date of publication. For living writers only the earliest work appears here. For further details see Index Catalogue, Library S. G. O. and especially the admirable list arranged by Dr. Fielding H. Garrison in 2 series, Vol. XVII, 1912, pp. 89-178, under the title: "Texts Illustrating the History of Medicine."

Research.

During the period immediately behind us, the first decade of the twentieth century, historical medicine, like history, archæology and medical science in general, has made more rapid progress for various reasons. On the one hand, scientifically trained adepts have increased in number, and on the other, highly improved and specialized methods and instruments of research have been applied. A feature of this advance is that a great number of ancient texts have been brought to light and made available for study by photographic reproduction, transcription and translation. By this means we are increasing and amending continually our knowledge of, for instance, ancient Greek medicine through Arabic and Syriac manuscripts,[6] into which it has passed in a less altered version than in those from which, after many manipulations during

[3] The "Biographie Médicale," edited by Panckoucke, 7 vols., 1820-25; the "Dictionnaire Historique," by Dezeimeris et al., 4 vols., 1828-39; and another by Bayle and Thillaye, 2 vols., 1855.

[4] "Versuch einer pragmatischen Geschichte der Arzneykunde," first issued in 1792 and rapidly followed by other editions and additions which were translated into several languages.

[5] Hecker (Medicine, 1822; Epidemics, 1865); Broeckx (Belgian Medicine, 1837; Choulant (Bibliography, 1828-1840; Anatomy, 1852); Henle (Pathology, 1840); von Siebold (Obstetrics, 1839-45); Wüstenfeld (Arabs, 1840); Haeser (Medicine, 1845); Malgaigne (Surgery, 1840); Morejon (Spanish Bibliography, 1842-52); Rosenbaum (Syphilis, 1839; Dermatology, 1844); Puccinotti (Italian Medicine, 1850-66); de Renzi (Salerno, 1859); Flourens (Physiology, 1854); E. H. F. Meyer (Botany, 1854-57); Wunderlich (Medicine, 1859); Virchow (Leprosy, 1860); J. Banga (Dutch Medicine, 1868); Daremberg (Medical Philosophy, 1870); Littré (Biography, 1872); Ingerslev (Scandinavian Biography, 1871-73); Rohlfs (German Medicine, 1875-85; Surgery, 1883); Baas (Medicine, 1876); Julius Peterson (Medical Therapeutics, 1877); Hyrtl (Arabic and Hebrew terms, 1879; old German Anatomical Expressions, 1884); A. Hirsch (Geography and Epidemics, 1881-86; Biography, 1884-88); Puschmann (Education, 1884; English Translation, 1891); Predöhl (Tuberculosis, 1888); Charcot & Richer (Art, 1887-89); Proksch (Venereal Bibliography, 1899); Roth (Vesalius, 1892); Creighton (Epidemics, 1894); Sudhoff (Paracelsus, 1894-99); Pagel (Medicine, 1896); Neuburger (Physiology, 1897); Berendes (Pharmacy, 1898); Hirschberg (Ophthalmology, 1899); von Töply (Anatomy, 1898); Fasbender (Obstetrics, 1906); Politzer (Otology, 1907-13).

[6] Galen's anatomy from the Arabic by Max Simon, 1906, and quite recently the book on Syriac medicine by E. A. Wallis Budge, London, 1913.

the Middle Ages, it came down to us in the first instance. Very much widened have become our conceptions of the ancient medicine of the Mesopotamian, Indian, Chinese and Egyptian civilizations, as a result of the extensive documentary material excavated and made available. America has entered this field of research lately in the edition of the Hearst Papyrus, but there still remain in this country many unexplored treasures which would add to our knowledge of these things.[7] Much progress has been made in the exploration of mediæval medicine, and evidence is accumulating which shows that the darkness of that age was not so profound as is commonly supposed, and that it can still throw much light.

The medical historian of our day is, however, not satisfied only to decipher the written word of past ages. He attempts, and in many cases very successfully, to obtain direct evidence of the diseases and medical practices of former times. The study of living primitive peoples, which is industriously pursued, gives many hints in this direction. But much interesting information can be obtained from all that excavations have brought to light: bones, mummified bodies, implements, etc. A striking example of this is the story read out of the trephined skulls found in various widely separated districts. American students, Robert Fletcher (1882) to name one, have assisted materially in unravelling the meaning of these finds. Very interesting and valuable are also the results of most original investigations carried on in Egypt and Nubia by English scientists, especially Drs. G. Elliot Smith and M. A. Ruffer. Mummies are being searched for traces of disease (Pott's disease, 1910, facial paralysis, hand deformities, 1912), not only with the naked eye, but also microscopically. The splints found on some bodies have told us most accurately how these people dealt with bone fractures and with what result. With the accumulation of greater material, the mooted question as to the rôle of tuberculosis, syphilis or arthritis in the production of certain alterations found in prehistoric bones as studied by Virchow, Paul Raymond and others, is approaching a solution. None of these findings are so far abundant enough to allow far-reaching conclusions, but they open already a wide outlook and a field of research, which will yield valuable information in time to come.[8]

The realization that artists, humble craftsmen as well as great masters, have from earliest times, depicted with knife, chisel or brush, subjects or scenes of medical interest, has naturally led to a search for such artistic representations. Coins and carved objects had furnished information even to older observers. Paintings of all kinds, including illuminations in manuscripts, have now become the object of minute scrutiny from the medical point of view. Virchow (1861) may be called the father of this line of research by his analysis of the painting of St. Elizabeth and the lepers by the Elder Holbein. Charcot's more extensive work in this direction was inspired when he saw, in the church of San' Ambrogio at Genoa, Rubens' masterpiece, "Ignatius de Loyola healing the sick."[9] He was struck by the wonderfully lifelike representation of the possessed woman, which vividly recalled what he had daily observed in his clinic at the Salpêtrière. Paul Richer, then his interne, tells of this and of the beginning of their joint researches on the demoniacs, the sick and deformed in art. These were collected and published in the "Nouvelle iconographie de la Salpêtrière" (since 1888), and brought out by Richer in connected form in that beautiful work "L'art et la médecine" (1900). Similar work has been taken up by many, and from various points of view. Landouzy, Crawfurd, Peters, Müllerheim, Wickersheimer and others have added most effectively to our knowledge by the study of pictorial representation. The efforts of Holländer, who has given us three monumental contributions on this subject (classical art, caricature, plastic art and medicine), merit separate mention. As a related movement may be considered the establishment of a special department on art at The Johns Hopkins Medical School. Here the main aim is a directly practical one, the teaching of pictorial representation of medical or surgical objects for publication. It seems very likely that, as this work develops, a historical consideration of the subject will become desirable and help to broaden the scope of this interesting departure.

It is regrettable that the results of these researches appear scattered in many different publications, which are in some cases rather difficult of access. The "Mitteilungen" (see footnote 1), the official periodical of the German Society, attempts to review all this work, and succeeds admirably, but naturally the German publications receive the principal attention. With the establishment of more intimate relations between medical historians of the various countries, means will undoubtedly be found by which international co-operation can be assured. A great impetus in this direction was given by the creation of a separate section for the history of medicine at the recent International Medical Congress in London, and its gratifying success brought about through the untiring efforts of its president, Dr. Norman Moore, with the collaboration of such men as Sir William Osler, Crawfurd, Comrie, Sudhoff, Sticker, Holländer, Meyer-Steineg, R. Blanchard, Wickersheimer, Dorveaux, Barduzzi, Corsini, Capparoni, Walsh and others.

The most important repositories of scientific historical research are the two dignified periodical publications of the Puschmann foundation: the "Archiv für Geschichte der Medizin" and the "Studien" (both Leipzig, J. A. Barth), edited by Karl Sudhoff. They have appeared regularly since 1907 and contain a large number of beautifully illustrated

[7] Very valuable Assyrian documents seem to be available in Philadelphia, and the Central Asiatic treasures of the Field Columbian Museum also await further scrutiny from a medico-historical point of view.

[8] It is significant that a special periodical devoted to the historic biology of pathogenetic agents has begun to appear in Germany: Zur historischen Biologie der Krankheitserreger. Edited by K. Sudhoff and G. Sticker (Giessen); 5 parts have appeared since 1909.

[9] Another painting of this same subject, also by Rubens, and of still greater force and interest, can be seen in Vienna.

articles, which are distinguished by accuracy and profound scholarship. These two publications, containing minute analyses of the sources by experts, bring out the new facts or corrections of older conceptions. They are of the greatest value to one who wishes to enter more deeply into the subject. The interested student and practitioner will have occasion to consult them only on rare occasions. In this connection it may be said in general of the literature above enumerated for the purpose of showing the evolution of medical historiography, that it contains very few works which merit study by one in search of historical information for the purpose of writing an article. The teacher ought to familiarize himself with it, but the student need only know where he may find further enlightenment on a given subject not, or only insufficiently, provided in the more recent works at hand. The writing of historical papers from information found in other historical works is devoid of any real value, except in the case of avowed compilations or historical prefaces, and then only when an indication of the sources is given. The field is open to any educated person who has a sufficient interest in the personality, the subject, or the epoch he wishes to discuss. The life and work of some physician, the genesis and evolution of a thought or method, and many other themes, offer plentiful material which can be studied with profit directly from the sources. The early history of American medicine is still a practically unexplored territory and there are surely in many communities valuable data which might shed interesting light on the activities of those men who work under the strain and stress of primitive conditions. Many an object lesson of practical bearing might be so obtained.

There are a few modern treatises or text books which can give to the student a comprehensive view over the immense field of the history of medicine as based on recent research. The voluminous "Handbuch der Geschichte der Medizin," founded by Puschmann, was edited by Neuburger and Pagel (3 vols., Fischer, Jena) in 1902 to 1903. It is intended to cover, in a series of articles by different writers, all the periods, including contemporaneous history. Primitive, ancient and mediæval medicine, various special branches and some diseases, are separately treated with an index of subjects for the whole work. This ambitious program has not found an absolutely satisfactory fulfilment. The necessary connection between the different articles is wanting and the articles themselves are of very unequal value. The brilliant introduction which Neuburger wrote for the second volume, and which surveys in masterly style the whole historical evolution, does not compensate for the inherent defects of the whole, although some of the articles have distinct merit. Apparently aware of this shortcoming, Neuburger began to publish in 1906 his "Geschichte der Medizin" (F. Enke, Stuttgart). The first volume contains primitive and Oriental medicine and that of classical antiquity. This part has been translated into English by Playfair and prefaced by Sir William Osler (London, 1910). Of the second volume which is to terminate the work, the first part has appeared (1908-1911) and brings the subject down to the end of the mediæval epoch. Here we have a master-piece of historical synthesis. Nowhere is one bothered by a tedious insistence on irrelevant details, although the author's intimate acquaintance with the results of analytical research is revealed everywhere. Never does he lose the thread which joins the thoughts and accomplishments of succeeding periods, and never does he isolate the history of medicine from that of human culture in general, which would be, to use Billings' phrase (Lowell lecture, 1887), "like cutting a narrow strip from the center of a piece of tapestry and speculating upon the origin and purpose of the cut threads and fragments of pattern that may be found in it." A fascinating, inspiring work which no one interested in the evolution of medical thought and deed can afford to ignore!

It is to be hoped that the second part of this volume will soon appear and that the English translation will speedily follow. Its possession, together with that of Garrison's "Introduction" (1913), will enable the English-speaking student and physician to dispense with any other works. For completeness' sake I must mention a French work, which has appeared lately from the pen of Dr. L. Meunier (Paris, Baillière, 1911). It is a readable treatise which attempts to cover the whole field in condensed form (640 pages sm. 8°). Unfortunately the illness and untimely death of the author have prevented his correcting the many errors in form and substance which have crept into the text, thus making unequivocal recommendation of the book impossible.

Exhibitions and Museums.

Special museums for the illustration of historical medicine are of very recent date. The basis was usually formed by a library to which were added curious objects, brought together by one or more collectors. No special plan was followed, only the whims or the good fortune of the individual amateur found expression. The modern museum has a more definite purpose; it attempts to illustrate the evolution of ideas and endeavors in given fields, and maintains the sequence by the substitution of facsimile reproductions where originals are not available. Modern technique has greatly facilitated this aim at completeness. With the realization of the eminent value of objective demonstration in teaching, the technique of museum organization in general has received, of late, very serious attention. The collective objects are not only placed in logically arranged groups, but also in a way to make them readily accessible for demonstration. Museums of historical medicine, if organized and utilized in this way, will surely become a necessary adjunct to every teaching establishment. This feature is as yet in an embryonic state. Still, we can observe some splendid efforts in this direction. Before I enter upon a rapid survey of the achievements in recent years, I wish to call attention to an American undertaking which has a suggestive bearing upon our subject. I mean the educational museum of the Teachers' College, Columbia University, of New York, organized by Prof. D. E. Smith. Here illustrations for lectures on the history of mathematics and of geogra-

phy are collected and supplied to lecturers where needed. The results have been so encouraging that an extension of the museum to other scientific branches is planned.

In this country there does not yet exist a historical medical museum, properly speaking, although there are several promising beginnings. First of all is to be mentioned the Army Medical Museum in Washington, also in part a creation of Billings. It contains much of historic importance, as does also the fine Warren collection at the Harvard Medical School. More specifically historical is the magnificent collection of medical classics in the library of the Surgeon-General's Office.[10] With this collection are exhibited portraits and some objects of medical interest, so that the nucleus of a historical museum may be said to exist. Col. Walter D. McCaw deserves great credit for having thereby materially enlarged and made useful and inspiring this great national library. The incentive to this came to some extent from Baltimore, where the historical spirit has been cultivated for many years by such physicians as Welch, Osler, Cushing, Thayer and others, and has, at times, found expression in demonstrations and exhibits of appropriate objects. Among these, the historical tuberculosis exhibition at Baltimore will remain memorable. As a similar effort may be mentioned the exhibition, arranged by the John Crerar Library in Chicago, in 1907-8, of rare medical works of the Senn collection. The George Washington University of St. Louis, which has recently acquired the library of the medical historian Pagel, will probably soon be prepared for similar work. In the National Museum at Washington there is an interesting collection of objects illustrating folk-medicine, which was prepared by Admiral James M. Flint, Surgeon U. S. Navy (retired).

Holland is the country which has taken the lead in the establishment of medical historical exhibitions and museums. Stokvis, Daniëls, van Leersum and others were, and still are, the principal inspirers. At the fiftieth anniversary of the Netherland Medical Society a historical exhibition was arranged at Arnhem in 1899, the extent and scope of which was much enlarged in a later one held at Leyden in 1907. The Arnhem exposition led to the organization of a permanent one in the States (Stedelijk) Museum in Amsterdam by Dr. C. E. Daniëls, who with great knowledge of the subject and an indefatigable energy, has brought together and most skilfully arranged the objects illustrating Holland's glorious share in the evolution of our art and science.

The great interest manifested in historical medical research in Germany has naturally led to corresponding efforts in this direction. The incentive and continual inspiration has emanated principally from Karl Sudhoff, who in 1898 organized the historical exhibition of medicine and natural science in Düsseldorf, and has ever since been active, directly or indirectly, in many other similar undertakings. With Holländer and Pagel he made his influence apparent in the Berlin exhibition (1906) of "The History of Medicine in Arts and Crafts," held in the Kaiserin Friedrich-Haus, where a similar permanent museum will probably be established. At the Germanic Museum in Nuremberg, soon after, several rooms were set aside for a medico-historical museum, which is being added to continually. The Historical Museum for Natural Sciences, opened in Munich (1906), has inspired a similar plan for medicine in the same city, but I do not know how far this has materialized. A great feature of the Hygiene Exposition at Dresden (1911) was the historical department, made possible through the efforts and munificence of Dr. K. A. Ligner and organized by Sudhoff and Neustätter. Although limited to the history of hygiene, it formed a most complete objective demonstration of the evolution of medicine from earliest times to our day. Since the closing of the exhibition, the gathering of historical material has been pursued by the directors of this department, and will probably soon assume a permanent form. The very important collection of the Institute for the History of Medicine at the University of Leipzig I shall consider in connection with the subject of teaching.

In England, where collecting has been a sort of national hobby, treasures have accumulated from an early date. Medicine has profited by the labors of Sloane, Mead, Freind and Hunter in this direction. The British Museum, the collections of the Royal College of Physicians, and the Hunterian Museum at the Royal College of Surgeons in London, are storehouses of priceless treasures of interest to us. But the most notable and specifically directed effort has found its happy *dénouement* in the opening on June 24th of this year (1913) of the Historical Medical Museum in London. The bulk of the objects here brought together were collected by Mr. Henry S. Wellcome with great wisdom and a generous disregard of expenditure. His purpose was, as he expressed it himself, "not simply to bring together a lot of curios for amusement," but to make it "useful to students and to all those engaged in research," because he had found "that the study of the roots and foundations of things greatly assists research and facilitates discovery and invention." He intends to make the museum a permanent one. To Mr. C. J. S. Thompson and Dr. Louis W. Sambon has been assigned the formidable task of finding, collecting, classifying and arranging the exhibits. They have discharged it with signal success, and there are few aspects which have not found ample illustration. Many valuable object lessons are contained in these exhibits, a fact to which Sir Frederick Treves, at the opening ceremonies of the museum, alluded in the following words: "One cannot help noticing in this museum, so far as the art and science of surgery is concerned, in what narrow lines progress has been made; and knowing that and studying it, one can forecast to some extent in what direction progress in the future will move."

London offered this summer another historical exhibition of interest to physicians, at the British Museum. Here, in the King's Library, was displayed in chronological order an admirable collection of medical manuscripts, books and illus-

[10] For detailed description see Jour. Am. Med. Assoc., 1911, lvi, 1785-1792.

trations, which no other single institution would be able to duplicate.

In France, historical museums exist only, as far as I know, in Rouen and Lyons. In the latter city one has been organized as an adjunct to the University through the efforts of Prof. Lacassagne. In Paris, such a museum has been planned for some time by the medical faculty, and the dean, Prof. Landouzy, is making every effort to complete the collections, so that in the near future the plan will become a reality. An interesting historical museum on vaccination has been established just outside Tours by Dr. Edmond Chaumier.

The Teaching of Historical Medicine.

Courses of lectures, given by academic lecturers or professors to students, are a novel feature in some of the European universities. The holder of the chair in some cases receives a salary, but usually the positions are honorary ones and the lectures are delivered gratuitously. Nowhere, I believe, are these courses obligatory nor are examinations held on the history of medicine. In Great Britain there are, so far as I know, only two lectureships, one in London, founded on the advice of Dr. Norman Moore by Dr. Fitz-Patrick's widow at the Royal College of Physicians. The lecturers have been J. F. Payne, Norman Moore and Sir Clifford Allbutt; the other at the University of Edinburgh, where J. C. Comrie has lectured. In Germany courses are given at Leipzig (Sudhoff), Jena (Meyer-Steineg), Freiburg, i. B. (Diepgen), Berlin (Pagel's successor not yet appointed), Würzburg (Helfreich). In Austro-Hungary there are also several chairs: in Vienna (Neuburger and Senfelder), Graz (Schrutz), Budapest (von György). In Paris a professor for the history of medicine was appointed for some time among the members of the faculty, the present appointee being Prof. Letulle. At Geneva, a successor to the late incumbent, Dr. Naegeli-Akerblom, has not yet been chosen, and at Basel, Prof. Roth and Prof. His (now in Berlin) and others have lectured on the history of medicine. At Copenhagen, Dr. Maar has just been appointed to the chair of Prof. Julius Petersen, and at Rome the lectures are given by Prof. Pensuti.

From this enumeration it becomes apparent that the custom of establishing such lectureships, although frequent, is by no means universal, and that so far the appointments depend mainly upon local opportunities, not upon a general demand. It lies in the nature of the subject, which has no apparent relation to practical aims, that such a demand will probably never become generally manifest and I must confess that the introduction of such lectures into the already overcharged curriculum does not seem to me to offer adequate advantages. On the other hand, there can be no doubt that just as the individual physician will gain by acquiring a knowledge of the historical evolution of his art and science, so will the medical school, and the question as to the best policy to be followed ought to have the serious attention of those in charge.

Personally, I believe that it will be done best by the encouragement of systematic historical research. Some few physicians will be found who have the time and the inclination to devote themselves exclusively to historical work. If they possess or aquire the necessary knowledge in general history, classic, modern languages and bibliography, and are given proper facilities, they will soon increase the number of those who already take a manifest interest in the history of medicine. This is the available ground to be cultivated and if it is worth doing at all it is worth doing well. History is constantly teaching the statesman, the lawyer, the geographer, and the artist; why not also the physician, who practices the most human art, the development of which has been promoted by various influences, often outside the scope of what we term exact science?

Such reflections, I hope, will lead medical schools sooner or later to take up the matter seriously and to introduce into the range of their activities the cultivation of historical research in some form or other. As an example of how this may be done successfully I think I may best describe, in conclusion, the method pursued and the results obtained at the University of Leipzig.

Endowment of Historical Research.

I have referred already to some publications of the "Puschmann Foundation." Theodor Puschmann was professor of history of medicine at Vienna. He and his wife both had independent fortunes, which they bequeathed in a joint testament "to the University of Leipzig for the promotion of scientific work in the field of the history of medicine." Puschmann died in 1899 and left his own property to his wife, withdrawing, however, his share in the above mentioned bequest. Frau Puschmann apparently expressed a desire to withdraw, but reconsidered the matter in 1900, which vacillation led, after her death in 1901, to a contest of the will. It was decided, however, in favor of the University of Leipzig after prolonged legal procedure. The sum of about 500,000 marks which thus came to the University, was put into the hands of nine trustees, under the presidency of the rector. Four members of this board are professors of the medical faculty, including the dean and the newly elected professor for historical medicine, whose salary was provided for in the articles of the foundation. The chair was offered to Prof. Karl Sudhoff, then at Düsseldorf, who accepted after the fulfilment of his condition that a research institute should be established. Aside from the superlative capacities of this first incumbent, it is undoubtedly due to the establishment of this institute that great results were obtained, and the authorities showed wise forethought in granting the creation of an entirely novel and untried scheme. During the eight years of its existence an enormous amount of constructive work has been done. It was not until 1906 that adequate premises became available for working rooms and collections. The latter had to be brought together piece by piece, no light task in itself, when one considers the degree of completeness that has been reached at present. All this labor of preparation did little to retard the principal work. Already in 1907 the "Studien" and "Sud-

hoff's Archiv" began to appear. They at once became the rallying-point of those devoted to serious scientific research, true to Sudhoff's principle that "one single fact, corrected or newly obtained through the study of the sources, is worth more to true science than a dozen or more of the most brilliant aperçus." Of course, criticism and attack were not wanting, but such epithets as "paper science," "antiquarian amusements," "useless encumbrance," and the like, thrown at the new venture, soon grew scarce, for it became more and more evident that the results of this earnest and sustained effort, generously put at the disposal of a wide circle, tended to form a bond between diverse efforts, and to promote general respect for medical art and science as a whole.

A detailed description of this institute may be welcome to those desirous of establishing something similar. In its present quarters it occupies a wing of the building of the Zoological Institute and Museum. Besides five well lighted, spacious rooms, it has a laboratory for photographic work. All the materials for study, such as books, photographs, engravings, models, etc., are classified and distributed on shelves, in drawers, or in showcases, distinctly labelled. Thus a student can find, easily accessible, all the available material for the study of a given subject, without having to begin with tedious bibliographic studies. In making the collection, Prof. Sudhoff has not endeavored to bring together original manuscripts, incunabula, first editions, and other objects of great material value, which would have required very large funds. For the purposes in view photographic reproductions or models were thought to serve fully as well. Nonetheless, originals are readily obtainable from other libraries and some choice editions belonging to university and city libraries are permanently accessible in the institute. In this way material is accumulated here from all parts of the world and from every phase of civilization.

In order to give an idea of the extent and method of arrangement of this collection I shall give the inscriptions of the various cases in their sequence. The numbers in parentheses indicate approximately the relative space, in shelves or drawers assigned.

In the first (so-called seminary) room is found the reference library (encyclopedias, dictionaries, biographic and bibliographic works, etc.), general and special historical and philosophical works (48). The room contains also files of medico-historical journals, the catalogue, and lockers for workers.

The second room is given over to the collection of works on medicine from the prehistoric to the Renaissance period. The works are usually so placed that the original texts (or their reproduction) and the commentaries thereon stand separately. The divisions are as follows: Prehistoric and Oriental Medicine: Prehistoric and anthropology (3), Popular medicine and folklore (2), Chinese and Japanese (1), Hebrew (2), Babylonian and Assyrian (4), East Indian (2), Egyptian (4), Greek Medicine: General history, geography and philosophy (3), Hippocratic (5), Natural sciences (2), Galen (3), Alexandrian (1), Aristotle (1), Mystic (3), other Greeks (1), Dioscorides (1), Greek texts in folios (1). Roman to Salernitan Medicine: Roman (5), Byzantine (5), Arabic (3), Monastic medicine (2), Salerno (1). Middle Ages: Mediæval northern, Anglo-Saxon (3), German (3), Roman (1), Mystic (1), Scholastic (1), Surgery (2), Folio texts (1). Renaissance: Medical education, universities (5), Leonardo da Vinci, folios and codices (1). This room contains also an additional collection of works on hospitals, epidemics and files of journals.

The third room includes mostly the collections on special subjects from the sixteenth century to modern times, and the museum exhibits in the following order: Endemics (1), epidemics (5), pathology (2), physiology (2), anatomy (2), Leonardo da Vinci and Vesalius folios (2); hygiene, medical jurisprudence, clinical and pharmacologic material (14); sixteenth, seventeenth and eighteenth century and corresponding text folios (14); nineteenth, twentieth century, local medical history, otology and dentistry, ophthalmology, surgery, Paracelsus and Fabricius Hildanus folios (14); local medical history, psychiatry, pædiatry, gynecology and obstetrics (7).

The museum exhibit embraces a collection of portraits, caricatures, etc., of physicians (alphabetically arranged on 18 sliding shelves). The four showcases contain under glass various originals and models (some on loan) of instruments, ex-votos, orthopædic and surgical appliances, etc. Below these are placed in about 120 drawers various photographic and other reproductions arranged in suitable groups. Given the great diversity of subjects so illustrated, the advantage to the teacher and student of having them appropriately classified is obvious.

A list of the various headings under which this remarkable collection appears, may be welcome. I give it in alphabetical order of the translation: Adam and Eve; alchemy, allegorical, America, prehistoric, anatomy from MSS.; aqueducts and hygiene (Roman); Arabic, care of sick, hospitals, veterinary medicine, pharmacy; Asia Minor; Asklepios and family; astrology; Babylonian gods and demons, cuneiform texts, medical and magical utensils; bandaging (M. A.); baths in open air, sea bathing, public baths, single baths, foot and hand ablutions; Bathsheba and Susannah; birth of Mary, of St. John, etc.; the blind; blood-letting; burial; care of wounded, clothing, utensils (ancient Greece); care of children, nursery (antiquity and M. A.); China and Japan; Christ's body; cholera; clothing and bedding; circumcision; cosmetics, Cosmos and Damian, life, cures, types, Cyprus and Crete; Dances of Death; death, suicide; death of Mary, the Saints, resurrection; deformities; demon exorcism; dietetics; dissections; dwarfs; Egyptian texts, gods, physicians, magical, gynecological, utensils; Etruscan gods and donaria; eyeglasses; folklore; pregnancy and obstetrics; Greek MSS. and texts, healing divinities, physicians; healing springs and mineral baths; hermaphrodites; holy healers of the sick (M. A.); incunabula; India; instruments; Israel; the lame and cripples; Leda; leechdom and "Lasstafeln"; leprosy, lice, etc. (M. A.); lying-in room; magicians and witches; mediæval charlatans and quacks, clysters, barbers, natural sciences, instruments, ex-votos, universities; modern MSS.; operations (M. A.); Paracelsus, MSS., localities, friends; papyri; patients; phallic worship; Phoenicians; physicians' costumes; plagues; prehistoric; poet physicians; resurrection (M. A.); Roman healing divinities; Saints (M. A.); stigmata of Christ, etc. (M. A.); suffering of mankind (M. A.); superstition (ancient); syphilis, temples and donaria, Greek; thermal; tooth extraction; urinoscopy; Venus antiqua et moderna; Vesalius and pre-Vesalian anatomy; veterinary.

These rooms, which are daily accessible to workers on special subjects and to students, adjoin two other rooms containing the offices of the director and the secretary, as well as the separate collection of the German Society for the History of Medicine and Natural Sciences.

It is, of course, needless to insist that a perfect equipment is no guarantee for good, useful work. For that is needed guidance and inspiration. But such an equipment as this greatly facilitates the task of the teacher and promotes the understanding by the student. Talks to students given here are always demonstrations and render unnecessary the didactic lecture which heretofore prevailed as the only method of

teaching the history of medicine. Billings, in his memorable address at the International Medical Congress of London in 1881, had some such scheme in mind when he said that instructions in the history and literature of medicine might be of great value, "not only as a means of general culture, as teaching students how to think, but, from a purely practical point of view, in teaching them how to use the implements of their profession to the best advantage—for books are properly compared to tools, of which the index is the handle. Such instruction should be given in a library, just as chemistry should be taught in the laboratory. The way to learn history and bibliography is to make them—the best work of the instructor is to show his students how to make them."

RÉSUMÉ.

Historical study and research, if forming an integral part in the scheme of medical education, will exert a most beneficial influence on student, teacher and medicine in general. Didactic lectures alone are insufficient and time-consuming. Whatever direct teaching is given students would be based best on objective demonstration and practical work in bibliographical and historical methods rather than on systematic historical lectures. Such instruction will best be given in separate premises easily accessible to all departments, where the objects for demonstration should be collected and classified and where special research can be carried on.

JOHN HUNTER: HIS LIFE AND LABORS.[1]

By C. W. G. ROHRER, M. D., Baltimore, Md.

For several years I have been pleasantly engaged in collecting the works of John Hunter, the founder of scientific surgery. I now have them complete; and for this reason I venture to bring before you a brief review of the life and labors of one with whose career you already are reasonably familiar.

BIRTH AND PARENTAGE.

John Hunter was born at Long Calderwood, Scotland, on the 13th of February, 1728. Long Calderwood is a small estate still belonging to his descendants, improved by a good stone house two stories high, situated about eight miles from Glasgow, in the parish of East Kilbride, county of Lanark. Here, in the second story room above the kitchen, John Hunter was born. There is some doubt concerning the exact date of his birth, but the one given above accords with that of the parish register.[2]

Strange to relate, Everard Home, in his "Life of Hunter," prefixed to the first edition of the "Treatise on Blood, Inflammation, and Gunshot Wounds," gives the 14th of *July* as the correct date. This is manifestly wrong. The *14th* of February is the date on which the anniversary of his birth is celebrated by the Royal College of Surgeons of England, and which he himself observed as his birthday; but "probably", as Stephen Paget writes, "he was born during the night of the 13th-14th and in the room over the kitchen."

He was the son of John Hunter and Agnes Hunter, his wife, whose maiden name was Paul. They were married on December 30, 1707. His father, who appears to have been a small farmer living on his own estate, was descended from a very old Scotch family, probably of Norman origin, the Hunters of Hunterston[3] in Ayrshire, whose history goes back

[1] Paper read at the meeting of the Johns Hopkins Hospital Historical Club, January 13, 1913.

[2] The following letter from the registrar for the parish of East Kilbride to Dr. James Watson, the president of the Faculty of Physicians and Surgeons of Glasgow, together with the accompanying register, are added as authority for any future biographer of John Hunter, and will doubtless be read with interest:—

EAST KILBRIDE, 29 March, 1859.

SIR:—I HAVE searched the records of Births and Baptisms for this parish and have found the name of John Hunter, and send you the Extract. You will observe that the Christian name of his mother is blank, and the place of birth a-wanting, neither being in the Register. On making further search, I found the name of a sister "Isobel," two years older than John the same omission occurs with the name of the mother; but the place of birth given is Calderfield and I am of opinion that the farm now known as Long Calderwood would at one time be divided into two farms named respectively Calderfield and Long Calderwood a circumstance very common in this Parish and I am led to this conclusion by the name of the farm adjoining that in question being likewise Long Calderwood, and no place known to me here having the designation of Calderfield.

I am, Sir, Yours, &c.,

MATTHEW DALGLISH, *Registrar.*

DR. JAMES WATSON,
153, St. Vincent Street, Glasgow.

COPY OF REGISTER ENCLOSED.

"John, a lawful son procreate between John Hunter and ——— Paul, born February 13th and baptized March 30th, 1728."

Extracted by me from the Register-Book of Births and Baptisms for the parish of East Kilbride, in the county of Lanark, this 28th day of March, 1859.

MATTHEW DALGLISH, *Registrar.*

In confirmation of the correctness of the registrar's notion, W. Hunter Baillie, the grandnephew of John Hunter, wrote as follows to John F. South, vice-president of the Royal College of Surgeons, under date of April 9, 1859:

"In looking at an old map I have of Long Calderwood farm and mansion, which belong to me, I find that a portion of this small property was called Calderfield, and that the larger portion was named Long Calderwood. Upon this latter stands the house which I have always heard was the birthplace of William and John Hunter. It was externally in good repair when I saw it a few years since, and is still serviceable for farming purposes, such as lodging for farm servants, &c. The house used for habitation by the farmer is on another part of the property."

[3] The old manor-house of Hunterston, with its tower of great antiquity, is still standing; once a strong-hold, now a farm-house.

to the thirteenth century. He was a man of refinement and of some education, with a high moral and religious sense. He was nearly seventy years old at the time of John's birth, who was the youngest of ten children, five dying in infancy. He died in 1738[4] at the age of seventy-eight. The mother was the daughter of a respectable citizen of Glasgow. According to M. Baillie, she was "a woman of great worth and of considerable talents." John was thus left, at the age of ten, to her sole care and, although a woman of strong mind, she was particularly indulgent to him. She died on November 3d, 1751, aged sixty-six years.

James, the eldest of the brothers who attained to manhood, was born in 1715. He was brought up to the law, but in 1742 he went to London to visit his brother William, who was at that time a teacher of anatomy, and was so captivated by his brother's pursuits that he relinquished the law to become a practitioner of medicine. Intense application to anatomy impaired his health and made it necessary for him to return to Long Calderwood, where he died of a pulmonary hemorrhage in 1743, in the twenty-ninth year of his age. He was a young man of pleasing address, and brilliant promise. William said of him, that if he had lived to practice physic in London, nothing could have prevented his rising to the top of his profession.

William, born on the 23rd of May, 1718, early rose to unrivalled distinction as a teacher of anatomy in London, attained a professional reputation which could not be exceeded, and a celebrity second only to that of his brother John. He was not only famous as a physician and physiologist, but also as the founder, so-called, of scientific midwifery. It was under the fostering care of this elder brother that John was initiated into those pursuits in which he soon became the rival of his instructor. He died in London, on the 30th of March, 1783, universally mourned and lamented.

The younger daughter, Dorothea, married Rev. James Baillie, the minister at Hamilton, near Kilbride, from whom descended the illustrious Dr. Matthew Baillie, and the no less distinguished Joanna Baillie, an authoress of high repute and one of Sir Walter Scott's closest friends.

BOYHOOD AND YOUTH.

Very little is known of the boyhood and youth of John Hunter. His biographers are unanimous in stating that he was wilful and disobedient, and much given to idleness. At the same time he was good at outdoor games, and observant of nature. While he cared little for books his mind was not wholly inactive, as the following statement concerning himself will show: "When I was a boy, I wanted to know all about the clouds and the grasses, and why the leaves changed color in the autumn; I watched the ants, bees, birds, tadpoles, and caddisworms; I pestered people with questions about what nobody knew or cared anything about."

The above, after all, is perhaps the best education he could have had for sharpening his senses to observe, and bringing his reasoning powers to bear upon problems of the highest interest, in the pursuit of which he was later to become an acknowledged leader. As Sir James Paget said of him: "He was impelled to obtain knowledge by intellectual self-exertion, and like an athlete restless in the exercise of his strength, so he could not rest; he could not but search, and watch, and question nature; he must compel her to answer, and he could set no limit to his search. Within the range of the great world of life he must seek by every method of inquiry, every kind and degree of knowledge."

At the age of seventeen, learning that his brother-in-law, a cabinet-maker at Glasgow, married to a sister whom he dearly loved, was laboring under pecuniary embarrassment, he paid him a visit, and for a time assisted him in his business, not as an apprentice but as a volunteer, working probably at small wages or simply for his board and clothing. It was this circumstance which induced some of his envious contemporaries to assert that in early life he had been a wheelwright or a carpenter;[5] a statement for which there is not the slightest foundation in truth. For three years he generously aided his brother-in-law, but tiring of an occupation which was in no wise congenial to him, he was seized with a desire to visit his brother William, who had been living for some time in London, and had succeeded in building up a large and lucrative practice, and was growing rapidly in reputation. He wrote to him, asking leave to come and be his assistant in his anatomical researches; or, if that proposal should not be accepted, expressing a wish to enlist in the army. In answer he received a very kind invitation from his brother, and immediately set off for London, where he arrived in September, 1748, about a fortnight before the commencement of the autumnal course of lectures. An arrangement was promptly made by which John became an assistant to his brother. Herein was aroused the latent fire of his remarkable genius, which never ceased to burn from that auspicious moment until the day of his widely-lamented death. His reception in London is described by Professor Samuel D. Gross, in the following words:

> The meeting between the two brothers was cordial, and arrangements were at once effected by which John became an assistant in William's anatomical rooms, which, although only recently opened, had already acquired marked celebrity on account of their educational advantages. It was there that young Hunter first became aware of his latent powers, and threw off

A report of the house, written in 1867, says that it has not changed since 1728, except that it was then thatched and is now slated, and two rooms downstairs have been thrown into one. From Hunter of Hunterston was descended Francis Hunter, John Hunter's paternal grandfather.

[4] 1738 is the date given by Ottley. According to Dr. S. Foart Simmons, the correct date is October 30, 1741. This would make Hunter thirteen years old at the time of his father's death.

[5] Reference is here made to Jesse Foot's statement, on p. 10, of his "Life of Hunter," which reads as follows:

"A wheel wright or a carpenter he certainly was, until the event of William Hunter becoming a public lecturer in anatomy, changed the scheme of his future occupations, and determined him to accept the invitation of his brother: to lay down the chisel, the rule, and the mallet; and take up the knife, the blowpipe, and the probe."

the incubus which had so long oppressed his soul. A new life broke in upon him; his ambition was aroused; industry, steady and unremitting, took the place of idleness, and the undecided, wavering, erring youth, stimulated by the new atmosphere in which he was now daily immersed, assumed the attitude and the assured character of the philosopher and the student of nature. Who or what brought about these wonderful changes in the life and conduct of this young man, so sudden, so unexpected? It is not difficult to answer the question. It was simply William Hunter, and the influence of his example. John saw the wonderful things which his brother was doing in building up a great anatomical museum, and it is, therefore, not surprising that his tastes should soon have taken a similar direction.[6]

Early Education.

Hunter's preliminary education had been almost wholly neglected, a lack which was never made good, and which, in his maturer years, he never ceased to regret. Before his father's death he had been sent to a Latin school at Kilbride, where he made no progress in his studies, and from which he was removed. Later he went to the grammar-school of Glasgow, but he had little or no taste for books and preferred sports to study.

He tried to remedy his ignorance of the fundamental branches in 1753[7] by entering St. Mary's Hall, Oxford, as a gentleman commoner. The motives which led him to take this step are not satisfactorily explained by any of his biographers, but it seems probable that he was urged to do so by his brother and friends. His brother was very anxious that he should abandon surgery and study medicine, which was regarded, and, perhaps not without reason in the then existing state of the science, as a higher branch of the healing art. With this end in view it was deemed very desirable that John should have a sound knowledge of Greek and Latin, as no physician was considered properly educated without it.

The effort, however, proved abortive. Hunter was now twenty-five years of age, and he had no disposition to shut himself up in a college, or to give up the idea, formed soon after he settled in London, of becoming a great surgeon. He looked upon such studies as a waste of time; and in referring to the subject some years afterwards, in a conversation with Sir Anthony Carlisle he thus feelingly expressed himself: "They wanted," he said, "to make an old woman of me, or that I should stuff Latin and Greek at the University; but," added he, significantly pressing his thumbnail on the table "these schemes I cracked like so many vermin as they came before me."[8]

One cannot but regret that Hunter did not carry out the wishes of his friends. A little "stuffing" of Latin and Greek would have been of vast benefit to him, in preventing those errors of style and literary composition which so greatly disfigure and obscure his writings.

[6] "John Hunter and his Pupils," p. 13.

[7] In the buttery book at St. Mary's Hall the date of Hunter's admission is given as June 5, 1755.

[8] Ottley's "Life of John Hunter" Palmer's Edition, vol. I, page 14, London, 1837.

Medical Training.

Hunter received much of his inspiration and medical training from three celebrated teachers—his brother, William Hunter, William Cheselden, and Percivall Pott. Symonds,[9] his brother's assistant in the dissecting room, also gave him much instruction.

Having been duly installed as assistant he set resolutely to work. He took, as it were, a new lease on life. Languor and indecision gave way to steady, unremitting toil, sustained by a definite purpose. It is stated of him that "he did not work in Anatomy, as is usually done, for a few hours in the day, but was employed in it from the rising to the setting of the sun."

The first task assigned to him was the dissection of the muscles of an arm, which was so well and so rapidly done that he was next set to preparing an arm in which all the arteries were injected, and these, as well as the muscles, were to be exposed and preserved. This labor was also performed in so satisfactory a manner as to elicit the highest commendation from his brother, who predicted his future greatness as an anatomist, and told him "he should not want for employment." His proficiency as a practical anatomist was so very rapid that, before the end of twelve months, he was intrusted with the preparation of his brother's subjects for his anatomical lectures.

The summer of 1749 was spent by Hunter at Chelsea Hospital, under the instruction of the celebrated Cheselden. Under this worthy master he learned the first rudiments of surgery, an exceptional opportunity which came to him at the request of his brother.

In the succeeding winter he was so far advanced as to become demonstrator of anatomy, assisting and directing the pupils in the dissecting-rooms, while his brother confined his attention almost exclusively to the regular lectures in the class-room.

The assiduous discharge of these most laborious duties gave Hunter full employment during the winter of 1749-50. During the summer he resumed his attendance at the hospital at Chelsea. In 1751 he entered St. Bartholomew's Hospital as surgeon's pupil to Percivall Pott, another great luminary in British surgery. In 1754 he became surgeon's pupil at St. George's Hospital. In the winter of 1755, seven years after his arrival in London and after he had acted as assistant for five years, he was admitted to a partnership in his brother William's private school of anatomy.[10] Besides a certain portion of the course of lectures allotted to him, he gave lectures when his brother was called away to attend his patients.

Professional Career.

Hunter's professional career may be said to have begun in May, 1756, when he was appointed house-surgeon to St.

[9] Sometimes spelt "Simmons," and also "Symons."

[10] I have purposely refrained from making even brief allusion to Hunter's differences with his brother William, as these unfortunate occurrences will be fully narrated in a subsequent paper on William Hunter.

George's Hospital, which position he retained, however, only for the short space of five months. The reason of his resignation is not recorded, but it was probably because he longed to return to the more congenial work of the dissecting room.[11] He worked for ten years on human anatomy, during which period, as Everard Home informs us, "he made himself master of what was already known, as well as made some addition to that knowledge." Some of his discoveries called forth the highest commendations of Baron Haller, then considered the first physiologist in Europe, and still command admiration. At that time he also began his studies in comparative anatomy, a new and untrodden field of scientific inquiry in which he was soon to become a distinguished authority. Unfortunately, owing to his incessant labors, his health was beginning to suffer. In the spring of 1759 he was attacked with inflammation of the lungs, from which he made a tardy recovery, the disease leaving in its wake certain symptoms suggestive of pulmonary tuberculosis.[12] He was strongly advised to go abroad; and in October, 1760, through the agency of his friends, he was made a staff-surgeon in the army. In the following spring he went with the army to Belleisle, off the western coast of France. He served as senior surgeon on the staff, both in Belleisle and in Portugal, till the year 1763, when peace having been proclaimed, he returned to England, completely restored to health, and settled in Golden Square, London, to start practice as a surgeon. He soon found that his half-pay as a military surgeon, and the emoluments derived from private practice, were inadequate for his support. Therefore, in order to increase his income, he taught practical anatomy and operative surgery for several winters. He also took private pupils, each of whom was apprenticed to him for five years, at a fee of five hundred guineas (about $2,650.00), which included board and lodging. Among his private pupils whom he continued to receive until within a short time of his death were Edward Jenner, John Abernethy, Henry Cline, Philip Syng Physick, Astley Cooper, Everard Home, and others.

At this time Hunter resumed, with unabated zeal, his researches in comparative anatomy and physiology. Finding that his experiments could not be conducted properly in the midst of a large city, in 1764 he purchased two acres of ground about two miles from London, beyond Brompton, and built upon it a small house to suit himself, well known by the name of Earl's Court.

In 1768 a vacancy on the surgical staff occurred at St. George's Hospital, and Hunter became a candidate for the position. Aided by his brother William, he was elected surgeon to the hospital, where he served until his death, twenty-five years later.

Soon after his appointment to St. George's Hospital he was elected a member of the Corporation of Surgeons. Although the corporation embraced some excellent men, Hunter had so little respect for it that he seldom attended its meetings or took any active part in its deliberations.

In the winter of 1773, Hunter determined to become a public lecturer on the theory and principles of surgery, his reasons for which were usually explained as often as he began his course. He stated that he had so frequently been compelled to hear his opinions either incorrectly quoted, or delivered as the discoveries of others, that he found it absolutely necessary himself to explain them systematically. For two winters he read his lectures gratuitously to the pupils of St. George's Hospital, and in 1775 publicly delivered them in his house in Jermyn Street.[13]

CONTRIBUTIONS TO MEDICAL SCIENCE.

Hunter made many notable contributions to medicine and surgery. Several of his early papers were published, in 1762, in Dr. William Hunter's "Medical Commentaries." These are: An account of his injecting the testis, his description of the descent of that body, with observations on the hernia congenita, and his experiments in proof of the veins not being absorbents.

Among his discoveries in human anatomy, and his contributions to that science, are the following:

He traced the ramification of the olfactory nerves upon the mucous membrane of the nose, and discovered the course of some of the branches of the fifth pair of nerves—the trifacial.

He traced, in the gravid uterus, the arteries of the uterus to their termination in the placenta.

He was the first to demonstrate the function of the lymphatic vessels as absorbents in the human economy.

In the course of his inquiries in comparative anatomy, aided by the results gleaned from animal experimentation, among other things he made the following discoveries, all of which have a distinct bearing upon human medicine and surgery:

He ascertained the changes which animal and vegetable substances undergo in the stomach, when acted upon by the gastric juice.

He discovered, by means of feeding young animals with madder, which tinges growing bones red, the mode in which a bone retains its shape during its growth.

He explained the process of exfoliation by which a dead piece of bone is separated from the living.

In 1776 Hunter sent to the Royal Society a memoir on the means to be employed in the resuscitation of persons apparently drowned. In the same year he was appointed Croonian lecturer by the Royal Society. The subject selected was "Muscular Motion." The course extended over a period of six years, being completed in 1782.

[11] In 1757, at the age of 29 years, Hunter was made Prosector and Demonstrator in Dr. William Hunter's Theatre of Anatomy, in Great Windmill Street (Professor Owen).

[12] There was a tuberculous taint in the Hunter family, James, an older brother of John, dying of "a spitting of blood," in the twenty-ninth year of his age, as stated in a preceding paragraph.

[13] The task of lecturing, even with his copy before him, was so formidable that he was obliged to take thirty drops of laudanum at the beginning of each course. Yet he certainly felt great delight in finding himself understood, always waiting at the close of each lecture to answer any questions; and evincing evident satisfaction when those questions were pertinent, and he perceived his answers were satisfactory and intelligible (Adams).

The prevention of rabies or hydrophobia early engrossed Hunter's attention, and he was one of the first surgeons who taught that deep excision of the wounded structures is the most successful method of operation.

He also made experiments upon the transplantation of teeth in the human subject, and upon skin grafting.[14]

The most remarkable operation associated with Hunter's name is the one in which he tied the femoral artery in the "aponeurotic space in the middle third of the thigh," in what has since been termed, and rightly, "Hunter's canal," for the cure of a popliteal aneurism. This one feat of surgical daring, novel alike for its resourcefulness and originality, is in itself sufficient to give him undying fame. It was performed in December, 1785, at St. George's Hospital. The particulars of this case are given in the London Medical Journal, and in the Transactions of a Society for Improving Medical and Chirurgical Knowledge. The patient, a coachman, forty-five years of age, in six weeks walked away from the hospital cured.

In his "Lectures on the Principles of Surgery" (Palmer's edition, vol. I, p. 551,), he comments upon this operation, as follows:

> In December, 1785, I performed the operation at St. George's Hospital, in a case of popliteal aneurism, in a manner different from that ordinarily practiced, and with success. ****** I would only observe, that in future I would advise only tying the artery in one part, and not to endeavor to unite the wound by the first intention. In that case four ligatures were applied upon the artery.

The three important principles on which the Hunterian operation is founded are:

> 1st. That *the impulse of the blood into the aneurism being restrained by a ligature placed on the artery above the tumor, the further progress of the disease will be checked*, without the necessity for a ligature being also placed on the artery below the tumor.
>
> 2d. *That the powers of absorption would suffice for the removal of the coagula in the sac*, and the necessity for opening it be thus done away with.
>
> 3d. *That the anastomosing vessels of the limb, in their natural state, would be capable of immediately taking on such increased action as would suffice for carrying on the circulation to the parts below the point at which the main artery was tied.*

It is a singular fact that Hunter foreshadowed the principles which now guide the surgeon in the treatment of club-foot and similar deformities. In 1767 he ruptured his tendo Achillis, a circumstance which led him to institute a series of experiments upon the reunion of divided tendons in the dog.

Books and Publications.

Hunter's merits as an author are truly great. Notwithstanding his want of scholarship, and the labor with which he composed, he was a prolific writer. Like his celebrated teacher and older brother, William, he early formed the habit of committing his views to writing, even when he did not intend to give them immediate publicity. Owing to an unfortunate circumstance (the burning of the Hunter MSS., by Sir Everard Home, in July, 1823), much that he wrote never met the public gaze. Many of his early contributions, especially those on comparative anatomy and physiology, found their way into the Transactions of the Royal Society and other similar publications, where they elicited much attention.

Hunter's first systematic work was his "Treatise on the Natural History and Diseases of the Human Teeth," the first part of which was issued in 1771, and the second seven years after (1778).[15] The work was well received, and greatly enhanced his reputation as an acute observer and investigator. His attention seems to have been originally directed to the subject by the deplorable state of dentistry, which was almost solely confined to the barber or ignorant mechanic, whose chief occupation consisted in extracting and plugging teeth.

On pp. 121 and 122, of Part I, in his remarks entitled "Of the Diseases of the Teeth," he says:

> The Teeth are subject to diseases as well as other parts of the body. Whatever the disorder is that affects them, it is generally

[14] "May we not claim for him," says Sir Wm. Fergusson, with reference to these experiments, "that he anticipated by a hundred years the scientific data on which the present system of human grafting is conducted?" (*Hunt. Orat.*, 1871, p. 17.)

[15] On the occasion of the publication of Part II, a new title-page was added to Part I, and the two (being bound together) were sold as the *second* edition.

The full title of Part I, which consists of 128 quarto pages, is:

The
NATURAL HISTORY
of the
HUMAN TEETH:
Explaining their
Structure, Use, Formation,
Growth, and Diseases.
Illustrated with Copper-plates.
By John Hunter, F. R. S.
Surgeon Extraordinary to the King, and Fellow of the Royal Society.

London,
Printed for J. Johnson, No. 72, St. Paul's Church-yard.

MDCCLXXVIII.

The full title of Part II, also containing 128 quarto pages, is:

A
PRACTICAL TREATISE
on the
Diseases
of the
TEETH;
Intended as a
Supplement
to the
Natural History of those Parts.
By John Hunter,
Surgeon Extraordinary to the KING, and Fellow of the Royal Society.

London.
Printed for J. Johnson, No. 72, St. Paul's Church-Yard,
MDCCLXXVIII.

attended with pain; and from this indeed we commonly first know that they are affected.

Pain in the Teeth proceeds, I believe, in a great measure, from the air coming into contact with the nerve in the cavity of the Tooth; for we seldom see people affected with the Tooth-ach, but when the cavity is exposed to the air.

It is not easy to say by what means the cavity comes to be exposed.

The most common disease to which the Teeth are subject, begins with a small, dark coloured speck, generally on the side of the Tooth where it is not exposed to pressure; from what cause this arises is hitherto unknown. The substance of the Tooth thus discoloured, gradually decays, and an opening is made into the cavity.

Part II consists of ten chapters, treating of a variety of topics. For example, Chap. I, Sec. IV, is devoted to a consideration of gum boils; Sec. VII, to abscess of the *Antrum Maxillare*. Sec. I, of Chap. III, is allotted to a discussion of the scurvy in the gums; while in Chap. IX, the transplanting of teeth is discussed *pro* and *con*. In Chap. X, pp. 126 and 127, he relates the following case where a disorder of the urethra was produced by dentition:

A boy, about two years of age, was taken with a pain and difficulty in making water; and voided matter from the *urethra*. I suspected that by some means or other this child might possibly be affected by the venereal poison; and the suspicion naturally fell on the nurse.

These complaints sometimes abated, and would go off altogether; and then return again. It was observed at last, that they returned only upon his cutting a new Tooth: this happened so often, regularly and constantly, that there was no reason to doubt but that it was owing to that cause.

The text of Hunter's book on the Teeth is embellished by sixteen plates. It also has a copious index. The work passed through three editions, the last having been issued in 1803, ten years after Hunter's death.

The "Treatise on the Venereal Disease" appeared in 1786,[16] followed by a second edition in 1788. A third edition was issued by Everard Home, in 1810. Having been long and impatiently expected, it at once attracted general attention. Hunter had spent many years in collecting his material; his object was to produce a great work, founded solely upon his personal observations. He had seen much of these diseases during his connection with the army, and afterwards in civil practice, and he felt that he could let the work rest upon its own intrinsic merits. His account of venereal affections was for upwards of a third of a century the best authority on the subject in any language, and his description of the indurated chancre is so graphic and distinct that it will always be called by his name. It runs in part as follows:

This, like most other inflammations which terminate in ulcers, begins first with an itching in the part; if it is the glans that is inflamed, generally a small pimple appears full of matter, without much hardness, or seeming inflammation, and with very little tumefaction, the glans not being so readily tumefied from inflammation as many parts are, especially the prepuce; nor are the chancres attended with so much pain or inconvenience, as those on the prepuce; but if upon the frænum, and more especially the prepuce, an inflammation more considerable than the former soon follows, or at least the effects of the inflammation are more extensive and visible. Those parts being composed of very loose cellular membrane, afford a ready passage for the extravasated juices; continued sympathy also more readily takes place in them. The itching is gradually changed to pain; the surface of the prepuce is in some cases excoriated, and afterwards ulcerates: in others a small pimple, or abscess appears, as on the glans, which forms an ulcer. A thickening of the part comes on, which at first, and while of the true venereal kind, is very circumscribed, not diffusing itself gradually and imperceptibly into the surrounding parts, but terminating rather abruptly. Its base is hard, and the edges a little prominent. When it begins on the frænum, or near it, that part is very commonly wholly destroyed, or a hole is often ulcerated through it, which proves rather inconvenient in the cure, and in general it had better, in such cases, be divided at first.

In 1788 a second edition of the "Treatise" was issued, also consisting of one quarto volume, price a guinea. On this work Hunter had bestowed an infinity of time and trouble; and before publication he submitted every part of it to a committee of his friends, consisting of Sir Gilbert Blane, Dr. Fordyce, Dr. David Pitcairn, and Dr. Marshall. Both the first and second editions were printed and published at Hunter's own residence."[17]

[16] The first edition was a handsome quarto volume of 398 pages, illustrated with seven full-page plates from drawings made by William Bell, and provided with a most comprehensive index. Its simple, but all-expressive title is:

A
TREATISE
on
THE VENEREAL DISEASE.
By John Hunter.
London,
Sold at No. 13, Castle-Street, Leicester-Square.
MDCCLXXXVI.

The dedicatory page of this pioneer and famous publication is interesting. It bears the following inscription:

To
SIR GEORGE BAKER, Bart.
Physician to Her Majesty,
President of the College of Physicians,
and
Fellow of the Royal Society,
THIS WORK
is inscribed
As a Mark of Esteem,
By His Friend, and
Humble Servant,
John Hunter.

Leicester-Square,
March 30, 1786.

[17] A third quarto edition was published the year after Hunter's death, by Everard Home. This was printed by some mistake from the first instead of from the second edition, and is, therefore, chargeable with all those errors which Hunter was at so much pains to correct. A fourth edition, in one octavo volume, with notes by Dr. Joseph Adams, was published in 1810. This is a pretty correct reprint from the second edition, augmented and elaborated by Adams' Commentaries. Meeting with a ready sale, a second edition of it was called for in 1818. In his preface, Dr. Adams pays Hunter a compliment by saying:

"I would advise every medical student to read the whole of the book in the order in which it stands. He will find it the best introduction to pathological reasoning that his closet can afford him. Those chapters, in the Third Part, which relate to Stricture and other diseases in the urinary passages, may perhaps fatigue his attention without adding sufficiently to his knowledge. It cannot be expected that he should retain the whole in his mem-

Of the "Treatise on the Venereal Disease," Jesse Foot has this to say (Life of Hunter, pp. 272 and 273):

> The sale of it was rapid at first from curiosity being artificially raised, as the papers of the day had announced that it was to throw all former productions at an humble distance.

Hunter's "Observations on Certain Parts of the Animal Œconomy" was first published in 1786. It is dedicated to Sir Joseph Banks, president of the Royal Society.[18] A second edition appeared in 1792; and in 1837, a third, edited by Richard Owen. The first two editions are quarto; and, like the corresponding ones of the "Treatise on the Venereal Disease," were printed and sold at Hunter's own residence. The third edition, the one by Owen, is an octavo volume of 506 pages.

The "Treatise on the Blood, Inflammation, and Gun-shot Wounds," a work of vast labor and the most patient research, and upon which Hunter's fame as a surgeon and a medical philosopher largely rests, was published in 1794, under the supervision of Dr. Matthew Baillie and Everard Home, only about one-third of the proofs having been revised by the author at the time of his death. A life, by Everard Home, was prefixed to the volume, but this, for some reason, was omitted in the succeeding editions of 1812, 1818, and 1828.[19]

Abernethy, in his "Lectures on Local Diseases," pays the following splendid tribute to this work:

> I know of no book, to which I can refer a surgical student for a satisfactory account of those febrile and nervous affections

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ory, and the remarks being chiefly practical, must be referred to as often as intricate cases occur. If therefore these chapters are read in their order, the student must not be angry with his Author or himself, if he cannot keep up his attention to every minutia. Whenever he has an intricate case, in his own practice, he will not accuse Mr. Hunter of prolixity."

A fifth edition, quarto, consisting of 429 pages, with notes by Sir Everard Home, Bart., was published in 1809 and 1810, it being the *second* edition by this editor, in which, however, few deviations from the first are observable. A supposititious title-page, purporting to be the *third* edition, seems to have been added in 1810, in order to increase the sale. The copy which I possess, of this edition, came from the library of Joseph Henry Green, who was president of the Royal College of Surgeons of England, in 1859, when Hunter's remains were transferred from the vault of St. Martin's-in-the-Fields to Westminster Abbey. It has for a frontispiece a print of Sharp's engraving of Reynolds' celebrated portrait of Hunter.

[18] TO SIR JOSEPH BANKS, Bart.,

President of the Royal Society, &c. &c. &c.

DEAR SIR,

As the following Observations were made in the course of those pursuits in which you have so warmly interested yourself, and promoted with the most friendly assistance, I should be wanting in gratitude were I not to address them to you, as a public testimony of the friendship and esteem with which I am,

Dear Sir,
Your obliged and
Very humble Servant,
JOHN HUNTER.

Leicester Square,
Nov. 9, 1786.

[19] The original edition of this splendid work was issued in a quarto volume of 575 pages, with eight plates. Prefixed to it is an account of Hunter's life and writings, consisting of 67 pages. An engraving of his head forms the frontispiece. The full title of the volume is:

A
Treatise
on
The Blood,
INFLAMMATION,
and
Gun-Shot Wounds,
By the Late
John Hunter.

To Which is Prefixed,
A Short Account of the Author's Life,
By His Brother-in-Law,
Everard Home.

London:
Printed by John Richardson,
For George Nicol, Bookseller to His Majesty, Pall-Mall.

1794.

It is dedicated to his Majesty, the King, in the following laudatory terms:

TO THE KING.

MAY IT PLEASE YOUR MAJESTY,

In the year 1761, I had the honour of being appointed by your Majesty a surgeon on the staff in the expedition against Bellisle.

In the year 1790, your Majesty honoured me with one of the most important appointments in the medical department of the army, in fulfilling the duties of which every exertion shall be called forth to render me deserving of the trust reposed in me, and not unworthy of your Majesty's patronage.

The first of these appointments gave me extensive opportunities of attending to gun-shot wounds, of seeing the errors and defects in that branch of military surgery, and of studying to remove them. It drew my attention to inflammation in general, and enabled me to make observations which have formed the basis of the present Treatise. That office which I now hold has afforded me the means of extending my pursuits, and of laying this work before the public.

As the object of this book is the improvement of surgery in general, and particularly of that branch of it which is peculiarly directed to the service of the army, I am led by my situation, my duty, and my feelings, to address it, with all humility, to your Majesty.

That your Majesty may long live to enjoy the love and esteem of a happy people, is the fervent wish of

YOUR MAJESTY'S
MOST FAITHFUL SUBJECT,
AND MOST DUTIFUL SERVANT,
JOHN HUNTER.

Leicester Square,
May 20, 1793.

which local disease produces, except that of Mr. John Hunter's TREATISE ON THE BLOOD, INFLAMMATION, &c.

That Hunter was pre-eminently fitted to write such a treatise, the following quotation from the advertisement to the English edition will abundantly show:

Mr. Hunter, in the year 1760, went as senior surgeon on the staff to Bellisle and Portugal, and continued abroad in active employment during the war, and there acquired a complete knowledge of *gun-shot wounds*, which can alone be procured by *actual* experience. In the year 1790 he was appointed inspector-general of hospitals, and surgeon-general of the army. Three years after this appointment, having long maturely weighed the important subject of gun-shot wounds, with the effects thereby procured (having now had three and thirty years ample experience) he brought forward his immortal treatise on the blood, inflammation, and *gun-shot* wounds. The expectation of the public was great, nor was it disappointed; for this work was found to answer the exalted reputation of the author. It was not a collection of the sentiments of others, but his own observations. It was wholly original.

It is interesting for Americans to note that a number of the experiments contained in Hunter's "Treatise on the Blood" were performed by one of his American pupils, Dr. Philip Syng Physick of Philadelphia, later known as the "Father of American Surgery." In this treatise, on p. 94, Hunter says: "Many of these experiments were repeated, by my desire, by Dr. Physick, now of Philadelphia, when he acted as house-surgeon at St. George's Hospital, whose accuracy I could depend upon." Hunter was so pleased with Physick that he offered him a share in his business, which, fortunately for this country, he declined.

A complete edition of Hunter's works was issued in London in 1837, in four octavo volumes, illustrated by a volume of plates in quarto, under the supervision of James F. Palmer,[29] assisted by Drewry Ottley, Thomas Bell, George B. Babington, and Richard Owen. Palmer himself superintended the publication of the "Lectures on the Principles of Surgery," and on the "Treatise on the Blood, Inflammation, and Gun-shot Wounds"; to Bell, an eminent dentist, was assigned the tract of the "Teeth"; Babington, a physician of wide reputation, took charge of the "Treatise on the Venereal Disease"; and Owen edited the papers on "Comparative Anatomy and Physiology." including an account of those published in the Philosophical Transactions. Ottley furnished a biography of Hunter for the first volume, which contains by far the most able and lucid account of him and of his writings that has ever been written. The "Lectures on the Principles of Surgery" were mainly printed from a copy, taken in short hand, by Nathaniel Rumsey, a pupil of Hunter.

In 1842, "A Descriptive and Illustrated Catalogue of the Calculi and other Animal Concretions Contained in the Museum of the Royal College of Surgeons in London," was published. The greater part of this collection, amounting to about six hundred specimens, was formed by Hunter.

Degrees and Honors.

Hunter received numerous testimonials of esteem and appreciation from learned societies at home and abroad, as well as friendly recognition from his own sovereign. In 1767 he was made a Fellow of the Royal Society of London; in 1776, Surgeon Extraordinary to George III; in 1783, a member of the Royal Society of Medicine and of the Royal Academy of Surgery in Paris; in 1786, Deputy Surgeon-General of the army; and in 1789, four years before his death, Surgeon-General and Inspector. The Copley medal of the Royal Society, the highest distinction in its gift, was conferred upon him in 1787, in recognition of the value of his services as an original investigator. The American Philosophical Society, the Royal College of Surgeons of Ireland, the Chirurgico-Physical Society of Edinburgh, and the Royal Society of Sciences and Belles-Lettres of Gottenburg also enrolled him among their members.

Private Life.

Hunter led a busy life. He was one of the most industrious of men, spending, for the furtherance of his great aims, practically all that he made. His brother-in-law, Sir Everard Home, tells us that for the first eleven years of Hunter's practice, 1763-1774, his income never amounted to a thousand pounds a year; and that he always added something to his collection as soon as he had succeeded in collecting fees to the amount of ten guineas. In the year 1778 his income exceeded a thousand pounds; for several years before his death it had increased to five, and at that period was above six thousand pounds.

In 1768 Hunter changed his residence, moving from Golden Square to Jermyn Street, into the house vacated by his brother William. The first part of the "Treatise on the Natural History of the Human Teeth" was published in May, 1771, and two months later he married Anne, elder daughter of Robert Boyne Home, surgeon to Burgoyne's regiment of light horse. She was twenty-nine years old and he was forty-three. They had been engaged many years; but Hunter's financial condition did not permit of an earlier marriage, and it is

[29] In vol. I, of Palmer's edition of Hunter's complete works, appears Ottley's admirable "Life of Hunter," by far the best which we possess. It comprises 198 pages. The remainder of this volume contains Hunter's "Lectures on the Principles of Surgery." Vol. II contains the two treatises on the "Teeth," and the "Treatise on the Venereal Disease." Vol. III is a reprint of the "Treatise on Inflammation," comprising 638 pages, and an elaborate general index to the three volumes, consisting of the remaining 38 pages. Nine pages descriptive of the plates then follow, the plates themselves appearing in a separate volume, quarto in size. Vol. IV is a reprint of the "Animal Œconomy."

In 1861 the scientific works of Hunter were published, in two octavo volumes, under the caption "Essays and Observations on Natural History, Anatomy, Physiology, Psychology, and Geology." These were edited by Professor Richard Owen. Vol. I contains observations on natural history, physiology, palæontology, phytology, and a treatise on animals. Vol II contains the observations on comparative anatomy.

stated that he used the proceeds of the above publication to defray the expenses of his wedding. Their married life is said to have been a happy one. Four children were born unto them, only two of whom grew to maturity.

In 1783, Hunter's lease of the house on Jermyn Street came to an end. His collection had grown so rapidly that he sought for more commodious accommodations, and purchased a large house on the east side of Leicester Square, with the ground behind it, and a house on Castle Street (it was No. 13), now part of Charing Cross Road. He continued to reside in Leicester Square until he died, with the exception of the summers, which were still spent at Earl's Court. Between the two houses he erected a building for his museum, on which he expended above three thousand pounds. It was ready for occupancy in April, 1785. Everard Home, William Bell, and a new assistant, André, helped to move the preparations and arrange them in the new building, which was opened to visitors in 1787.

With the exception of an attack of pneumonia in 1759, Hunter enjoyed excellent health during the first forty years of his life. In 1769 he had a severe attack of gout, and another in 1773, accompanied by a spasmodic affection of different parts of his body, eventually involving his heart. From this time his cardiac disturbance was apt to recur after exertion, fatigue, or mental irritation.[21] In December, 1789, four years before his death, he was suddenly seized with a total loss of memory, lasting for fully half an hour. In the autumn of 1790, and in the spring and autumn of 1791, his attacks of angina became more and more severe; in the beginning of October, 1792, he had one so violent as to almost cause his death.[22]

In person Hunter was about the middle stature, measuring five feet two inches in height, uncommonly strong and active, very compactly made, but free from corpulency, and capable of great bodily exertion. His shoulders were high, and his neck short. His eyes and complexion were light, his brows heavy, his cheeks rather high, and, as one of his biographers (Jesse Foot) expresses it, his mouth was somewhat underhung. In a word, his features were rather large, and strongly marked. His hair, in his youth, was inclined to red, but as he advanced in life it became gray, and at length partially white. His countenance was animated, open, and in the latter part of his life deeply impressed with thoughtfulness. When an engraving of him was shown to Lavater, he said, "That man thinks for himself." He required little sleep, often working, with hardly any intermission, for nearly twenty hours out of the twenty-four. He was unassuming in his manners, but rather cold and reserved at times; in his dress he was plain and simple, and not always neat.

[21] He was accustomed to say that "his life was in the hands of any rascal who chose to annoy and tease him."

[22] In addition to the above he had a severe attack of illness in the spring of 1777, and another in 1785, lasting about fifty days.

Closing Years.

Hunter's final hour came at last—death, sudden and unexpected, overtook him at St. George's Hospital. A special meeting of the governors and of the surgical staff of that institution had been called, to discuss business of importance connected with the admission of pupils and the mode of instructing them. A remark which Hunter made during the discussion was flatly contradicted by one of his colleagues. This disturbed Hunter immeasurably; and, as a consequence, he was seized with a most excruciating attack of angina. He immediately ceased speaking and hurried into an adjoining room, to fight out his pain by himself. His nephew, Dr. Matthew Baillie, followed him from the board-room; he went a few steps, gave a deep groan and fell into the arms of Dr. Robertson, one of the physicians of the hospital who chanced to be present, and expired.

Hunter's brother-in-law and assistant, Everard Home, who was in the hospital at the time, was also summoned. Various attempts were made for upwards of an hour to restore animation, under the hope that the attack might prove to be a fainting fit, such as he had before experienced, but in vain. His body was placed in a sedan chair and conveyed to Leicester-Square, followed by his now vacant carriage.[23]

This most distressing event put an end to the business of the meeting. The only notice to be found on the books of that day's proceedings is the following minute:

> "*Resolved*,—That Mr. Hunter's letter to this Board relating to two of the surgeons' pupils, which was received this day, be preserved for future consideration."

An occurrence so sad and so unusual called forth a widespread sympathy, and created a profound sensation wherever Hunter's name and fame were known and appreciated. In the language of Professor Gross, ("John Hunter and His Pupils," pp. 26 and 27):

> Like Cæsar, Hunter was murdered by his friends, not in the senate chamber, but in the consultation room of a hospital which had so long been the recipient of his services, of which he was the chief ornament, and which should have overlooked his infirmities, some of them inherent in his nature and others the result of long-continued overwork of mind and body.

[23] Mrs. Hunter survived her husband twenty-seven years, dying January 7, 1821, aged seventy-nine. According to Ottley, "she was an agreeable, clever, and handsome woman, a little of the *bas bleu*, and rather fond of gay society, a taste which occasionally interfered with her husband's more philosophical pursuits." She wrote the Shepherd's Song, "My Mother Bids Me Bind My Hair," immortalized by the setting which Haydn gave it; she also wrote the words for Haydn's "Creation." In her latter years she published a small volume of poems, which possess considerable merit as a light effort. She was universally beloved and esteemed, retaining her wit and beauty to the end of her days. The Hunterian orator of 1821 paid to her memory this heavy compliment — that "she had sustained an honourable widowhood, estimable for talents of her own, and venerable as the relict of her illustrious husband."

Even Jesse Foot was moved to eulogistic expression when he wrote the following ("Life of John Hunter," p. 282):

> On being told of this event, on the same day, I recollected seeing the bay stallions returning, through Piccadilly, home, without their master; and this circumstance introduced to my reflection the sympathy which Virgil has attributed to the war-horse of young Pallas in his funeral procession——
>
> *Post bellator Equus, positis insignibus Æthon*
> *It lachrymans.*

Hunter's death occurred on Wednesday, October 16, 1793, in the sixty-fifth year of his age. On the following Tuesday (October 22) his body was interred[24] in one of the public vaults of the church of St. Martin's-in-the-Fields, the obsequies being attended only by the family and a few intimate medical friends.

The autopsy,[25] performed by Everard Home and Dr. Matthew Baillie, amply confirmed the diagnosis of his friend and pupil, Dr. Jenner. It revealed the existence of ossification of the mitral valves of the heart and dilatation of the aorta, with thickening of its valves and degeneration of its coats. The coronary arteries were converted into long, rigid tubes. The heart itself was uncommonly small.[26]

That Hunter wished an autopsy to be performed upon him, the subjoined foot-note on p. 132, of Ottley's "Life," would indicate:

> It has been supposed by some that Hunter had the same antipathy to the scalpel of the anatomist as was felt by his brother; but this was by no means the case; on the contrary, he always spoke of it as a matter of course, and used, in the strongest language, to express his condemnation of those who should neglect to examine his body and preserve his heart. It is to be regretted that no relic of this sort has been preserved."

Commenting upon Hunter's death, Ottley, on the following page (p. 133), adds:

> Thus, in his sixty-fifth year, died John Hunter, celebrated alike as a surgeon and as a naturalist; in neither of which capacities has he had many equals,—in his combined character, none.

[24] The burial took place at quarter past four in the afternoon, as the following entry in the sexton's old register-book at St. Martin's Church would indicate. The statement, however, that Hunter died of apoplexy, is inaccurate.

"1793, Oct. 22, John Hunter, Esq., Leicester Square, No. 3 vault, 6*l.* 10*s.* 0*d.*—no candles, ¼ past 4. Apoplexy."

[25] For a detailed account of the post mortem appearances, the thoughtful reader is invited to turn to pp. lxii, to lxv, of the Life by Home, prefixed to the "Treatise on Inflammation"; or to an article entitled "Angina Pectoris and Allied States," by Professor Gairdner, M. D., in vol. IV, of Reynolds' "System of Medicine," p. 560 *et seq.*

[26] I am inclined to believe that the aneurismal dilatation of Hunter's aorta, and the other pathological conditions noted above, which caused his death, were largely due to an attack of syphilis which he had had in early manhood as the result of his inoculating himself on the glans and prepuce, in May, 1767, with secretion from what was probably a concealed urethral chancre, mistaking it for gonorrhœal discharge. Then, too, he was subjected to other perturbing influences productive of arteriosclerosis—worry, overwork, financial embarrassment, loss of sleep, and a hasty temper.

Memoirs of Hunter.

Memoirs of Hunter were published soon after his death by his brother-in-law, Everard Home, Jesse Foot, Surgeon, and Dr. Joseph Adams, an eminent English medical scholar.

The "Life" by Home was prefixed to the first edition of Hunter's "Treatise on Inflammation," but was omitted in the subsequent issues. It is a splendid account of the life and labors, professional and private, of this justly celebrated British surgeon, "the first anatomist and the first surgeon in the world," as many talked of him in the later part of his brilliant and eventful career.[27]

In the same year, 1794, Jesse Foot published his "Life of John Hunter," an octavo volume of 287 pages. This memoir was not well received by the profession. Ottley states that some of Hunter's enemies paid Foot four hundred pounds for writing it. The work is characterized by Professor Gross as "a scurrilous attempt to depreciate the character of Hunter as a scientific man, and abounds, as might be supposed, in flagrant misstatements and wilful misrepresentations." "If the author had set out," he continues, "with a determination to gain an ignominious immortality, he could not have succeeded better."

Despite the numerous aspersions which have been cast upon Jesse Foot's book, I find at least some little good in it.

His description of Hunter's habits of work, coming first-hand from one who knew him personally, is one of the best which we have (p. 285):

> I believe John Hunter to have been one of the most industrious of men. The way in which his time was devoted,—before he obtained the public appointments,—was, as follows:—He rose very early in the morning, and went immediately into the dissecting room,—where he sometimes dissected, and gave directions concerning, what he would have done, in the course of the day. After breakfast, he attended to those patients who came to his house. At eleven he went abroad; and was employed in visiting patients,—attending at the hospital,—and when the occasion called for it, in opening dead bodies. He eat very hearty at his dinner,—and rarely drank more, than a glass of wine, and sometimes not that. In the evening, he was engaged in reading his lectures, and writing down observations, which he had made through the day,—or preparing, for the next coming publication. He seldom retired to rest till twelve, or one o'clock.

In 1817 a meritorious work appeared, entitled "Memoirs of the Life and Doctrines of the late John Hunter, Esq., founder of the Hunterian Museum at the Royal College of Surgeons in London," written by Dr. Joseph Adams. The portrait prefixed to this work is from a bust by Bacon, in the execution of which he was assisted by a cast taken during life. In the following year a second edition was called for. The portrait in this edition is from a bust by Flaxman, in the execution of which he also was assisted by a cast taken during life.

[27] He was the greatest man in the combined character of physiologist and surgeon that the whole annals of medicine can furnish (Lawrence).

In 1833, Parkinson's "Hunterian Reminiscences" were published.[28]

In 1837 appeared the excellent memoir by Drewry Ottley, prepared for Palmer's edition of Hunter's complete works. This is by far the most able, full and impartial memoir that we have of him. The portrait of Hunter is identical with that in the second (1818) edition of Adams' "Memoirs."

A good memoir of Hunter is to be found in Vol. XXII, of the Naturalist's Library, edited by Sir William Jardine and published in 1854. In 1881, there was published a small octavo volume by Professor Samuel D. Gross, of Philadelphia, entitled "John Hunter and His Pupils." In his opening paragraph he says:

> All intelligent readers of biography are more or less familiar with the labors and writings of John Hunter, his marvellous genius, and his vast contributions to science. In the medical profession his name is, and always will be, a household word throughout the civilized world; it is spoken with respect and reverence in every college amphitheatre, and is deeply engraved upon the mind of every student of surgery. Nevertheless there are, it may safely be asserted, many points of interest in his life, and many traits of character, which have escaped our memory, or which have never been so thoroughly impressed upon our attention as to enable us to appreciate them at their full value.

[28] The following is a copy of the title-page of this comely volume, now excessively rare and extremely difficult to obtain:

HUNTERIAN REMINISCENCES;
Being the Substance of a
COURSE OF LECTURES
on the
PRINCIPLES AND PRACTICE OF SURGERY,
Delivered by the Late
MR. JOHN HUNTER,
IN THE YEAR 1785:
TAKEN IN SHORT-HAND, AND AFTERWARDS FAIRLY TRANSCRIBED, BY
THE LATE MR. JAMES PARKINSON,
Author of "Organic Remains of a Former World," &c.

Edited By His Son,
J. W. K. PARKINSON,
Fellow of the Royal College of Surgeons, in London,
By whom are appended
ILLUSTRATIVE NOTES.

LONDON:
SHERWOOD, GILBERT, AND PIPER, PATERNOSTER ROW.

1833.

The dedication is interesting, and calls to mind many historical associations. It reads, as follows:

TO
MR. WILLIAM CLIFT,
Formerly the Zealous and Diligent Assistant of the Late
MR. JOHN HUNTER,
Now the Able Conservator and Intelligent Illustrator
of the
HUNTERIAN MUSEUM,
THIS WORK IS INSCRIBED,
by
THE EDITOR.

In 1893, George Mather, a celebrated British physician, wrote an engaging volume entitled "Two Great Scotsmen—William and John Hunter," in which is contained a most fascinating record of John Hunter's life and labors. In the "Masters of Medicine" series, there is an admirable little book entitled "John Hunter, Man of Science and Surgeon," 1897, by Stephen Paget. Notices, more or less elaborate, of Hunter have also appeared in the various orations which have been delivered, since 1814, in commemoration of him by the president and fellows of the Royal College of Surgeons of England. The brief eulogy by the president, Sir William Mac Cormac, at the centenary festival of the Royal College of Surgeons held in London on Thursday, July 26, 1900, is the most beautiful tribute to Hunter that I know. He says:

> Of John Hunter (1728-1793) no detailed mention is required here. His memory and his methods continue a living influence amongst us. He made our Surgery a science, and has given to us in our Museum an imperishable memorial of his industry. In it are illustrated those marvellous powers of observation which had never before been equalled, and will never in all probability be surpassed. So long as Surgery continues, Hunter's influence must be felt. It is witnessed in the creation of so many distinguished disciples imbued with his principles and able to expound his doctrines. He embodies and represents the glory of our Science, our College, and our Country.

Memorials to Hunter.

The casual observer will find much to remind him that John Hunter lived among men. Of the various portraits that are extant of him, that by Sir Joshua Reynolds, painted in 1787, is by far the best. It represents him as sitting in a chair in deep thought, with a pen in one hand and the other supporting his chin. Three of the folio volumes of MSS., burned thirty-six years later by Sir Everard Home, are placed at his side. Other things around him, in addition to the manuscripts, are the jars containing preparations, and the dangling feet of the Irish giant's skeleton, the latter said to have cost Hunter the extravagant sum of £500. From this portrait by Reynolds an admirable engraving was made by Sharp.

As a frontispiece to Hunter's "Essays and Observations" there is a good likeness of him, after a medallion taken in 1791. Another favorite likeness is a pencil drawing taken by Sir Nathaniel Holland in 1793, the year of Hunter's death. After Hunter's death a bust of him was made by Flaxman, in the execution of which he was assisted by a cast taken during life.

The Hunterian museum, purchased by the British Government and placed in custody of the Royal College of Surgeons of England, is another mighty reminder of Hunter and his indefatigable industry. Hunter's executors, Sir Everard Home and Dr. Matthew Baillie, on June 13, 1799, sold the museum to the Government for £15,000. It cost £70,000. The trustees held it for six years, but Mrs. Hunter's financial needs were pressing, and for this reason they urged the sale. The original collection was estimated by Prof. Charles Stewart and Timothy Holmes to consist of 13,682 specimens, the

largest number ever gotten together by one man, distributed under the following heads:

I. PHYSIOLOGICAL DEPARTMENT, OR NORMAL STRUCTURES.

1. Physiological preparations in spirit,	3,745
2. Osteological preparations,	965
3. Dry preparations,	617
4. Zoological preparations,	1,968
5. Fossils:—	
a. Vertebrate,	1,215
b. Invertebrate,	2,202
c. Plants,	292

II. PATHOLOGICAL DEPARTMENT, OR ABNORMAL STRUCTURES.

1. Preparations in spirit,	1,084
2. Dry preparations (including bones),	625
3. Calculi and concretions,	536
4. Monsters and malformations	218

III. *Microscopic preparations*, ... 215

Catalogues of the Hunterian Museum, comprising ten quarto volumes, were prepared many years ago (1833-1856) by Professor Richard Owen and Mr., later Sir James, Paget, the latter having charge of the pathological specimens. The first curator, or, as he is styled in England, conservator, of the museum was William Clift, Hunter's last assistant.

In the year 1813 Dr. Matthew Baillie and Sir Everard Home, executors of John Hunter, "being desirous of showing a lasting mark of respect to the memory of the late Mr. John Hunter," gave to the Royal College of Surgeons of England the sum of £1684 4*s.* 4*d.*, for the endowment of an annual oration, to be called the Hunterian oration, and to be delivered in the theatre of the college on Hunter's birthday. The first Hunterian oration was delivered on February 14, 1814, Sir Everard Home being the orator. In 1853 it was decided that the oration should in future be delivered biennially instead of annually. The next Hunterian oration will be delivered by Sir Rickman Godlee,[20] president of the College, on Friday, February 14, of the present year. To him I am indebted for the complete list of Hunterian orators:[20]

1814. Sir Everard Home, Bart.
1815. Sir William Blizard, Knt.
1816. Henry Cline.
1817. William Norris.
1818. Sir David Dundas, Bart.
1819. John Abernethy.
1820. Sir Anthony Carlisle, Knt.
1821. Thomas Chevalier.
1822. Sir Everard Home, Bart.
1823. Sir William Blizard, Knt.
1824. Henry Cline.
1825. William Norris.
1826. Sir Anthony Carlisle, Knt.
1827. Honoratus Leigh Thomas.
1828. Sir William Blizard, Knt.
1829. John Painter Vincent.
1830. George James Guthrie.
1831. Anthony White.
1832. Samuel Cooper.
1833. John Howship.
1834. William Lawrence.
1837. Sir Benjamin Collins Brodie, Bart.
1838. Benjamin Travers.
1839. Edward Stanley.
1840. Joseph Henry Green.
1841. Thomas Callaway.
1842. George Gisborne Babington.
1843. James Moncrieff Arnott.
1844. John Flint South.
1846. William Lawrence.
1847. Joseph Henry Green.
1848. Richard Dugard Grainger.
1849. Cæsar Henry Hawkins.
1850. Frederic Carpenter Skey.
1852. James Luke.
1853. Bransby Blake Cooper.
1855. Joseph Hodgson.
1857. Thomas Wormald.
1859. John Bishop.
1861. William Coulson.
1863. George Gulliver.
1865. Richard Partridge.
1867. John Hilton.
1869. Richard Quain.
1871. Sir William Fergusson, Bart.
1873. Henry Hancock.
1875. Frederick Le Gros Clark.
1877. Sir James Paget, Bart.
1879. George Murray Humphry.
1881. Luther Holden.
1883. Sir Thomas Spencer Wells, Bart.
1885. John Marshall.
1887. William Scovell Savory.
1889. Henry Power.
1891. Jonathan Hutchinson.
1893. Thomas Bryant.
1895. John Whitaker Hulke.
1897. Christopher Heath.
1899. Sir William MacCormac, Bart.
1901. Nottidge Charles Macnamara.
1903. Sir Henry Greenway Howse, Knt.
1905. John Tweedy.
1907. Henry Trentham Butlin.
1909. Henry Morris.
1911. Edmund Owen.
1913. Sir Rickman John Godlee, Bart.

In 1859 the remains of John Hunter were removed from St. Martin's-in-the-Fields and reinterred in Westminster Abbey, largely through the efforts of Frank Buckland, the eminent naturalist.[21] For sixteen days, with but one assistant, he

[20] The following reference thereto appeared on p. 146, of *T. P.'s Weekly*, of date January 31, 1913.

"The Hunterian Festival, which is held biennially, takes place on February 14 at the Royal College of Surgeons. The oration will be delivered by the president, Sir Rickman J. Godlee, in the afternoon, and the customary banquet will be held in the library of the college in the evening."

[20] At the same time I received the subjoined letter:

Royal College of Surgeons of England,
Lincoln's Inn Fields,
London, W. C.
2d day of December, 1912.

Dear Sir:—I am desired by the president, Sir Rickman Godlee, to send you the enclosed particulars with reference to the Hunterian oration.

Each oration is called simply the Hunterian oration, and no other title is ever adopted.

Dr. Frank Buckland presented to the college a photograph of John Hunter's coffin, taken when it was removed from St. Martin's-in-the-Fields, and this is in the library of the college. There are, however, no duplicates, nor have we any photographs of the tomb in Westminster Abbey; but the president is pleased to send you the enclosed copy of the inscription on the tomb.

The president also desires me to thank you for the two pamphlets which you have kindly sent to him.

Yours faithfully,
(Signed) S. FORREST COWELL,
Secretary.

DR. C. W. G. ROHRER.

[21] The beginning of the story of the discovery, on February 22, 1859, of the remains of John Hunter in the vaults of St. Martin's-in-the-Fields, is also of absorbing interest, and I shall here give it in Mr. Buckland's own words, as related by him on pp. 215-218, of his "Curiosities of Natural History," Fourth Series:

"In the month of January, 1859, when sitting in the mess-room of the 2d Life Guards, at Windsor, looking over the advertisement sheet of the 'Times,' the following caught my attention:—

"'ST. MARTIN'S-in-the-FIELDS—CHURCH VAULTS AND CATACOMBS—ORDER in COUNCIL—NOTICE. Any person or persons having the remains of relatives or friends deposited in any of the vaults under the church, or in any of the catacombs under the churchyard, situate at the north-east corner of Trafalgar Square, are hereby informed that they may, if they so desire,

searched the vaults of St. Martin's, before finding Hunter's coffin. It was well preserved, bearing upon it, besides the brass name plate, Hunter's arms—a hand with an arrow in it, and the three horns of the hunter. The happy culmination of this extraordinary labor of Mr. Buckland, this "chivalrous devotion to the relics of a great man," can best be described in his own words.[32]

After a time all the coffins were removed away from the vault but five; two lay side by side upon the floor, and three one over the other in a corner of the vault; and I could see the names on all these coffins except two: my chance was now therefore limited to these two coffins.

The total number of coffins in No. 3 vault was over two hundred. The total number of coffins removed was three thousand two hundred and sixty. This will give some idea of the task that I had undertaken and had now nearly finished. If one of these coffins therefore was not John Hunter's, all our labours would have been in vain. The workmen stood at the head and foot of the uppermost coffin of the three, and slowly moved it away that I might see the name upon that immediately below it. As it moved slowly off, I discerned first the letter J, then the O, and at last the whole word John. My anxiety was now at its height, and quickly running to one end, Mr. Burstall at the other, we moved the coffin away. At last I got it completely off, and to my intense delight read upon the brass plate the following inscription:—

JOHN HUNTER,
Esq.,
DIED 16TH OCTR.,
1793,
Aged 64 Years.

The Hunters' arms, viz., a hand with an arrow on it, also the three horns of the hunter, were upon the plate.

Lest there should be any subsequent doubt upon the identity of this coffin, a photograph was taken of it by Mr. Soame, which I have presented to the Royal College of Surgeons.

On March 28, re-interment was made in Westminster Abbey with impressive ceremonies.[33] On the following day, March 29, 1859, an address was delivered by Joseph Henry Green, president of the Royal College of Surgeons of England, urg-

remove the same before the 1st day of February 1859; after which date, all coffins remaining in the said vaults or catacombs will be reinterred in the same place, and finally built and closed up in accordance with the said Order in Council, and cannot afterwards be inspected on any pretence whatever.

"'BENJAMIN LATCHFORD, } Churchwardens of the said
CHARLES H. PETTER, } Parish.

"'All communications to be made in writing, addressed to us at the Vestry House, Adelaide Place, W. C.'

"Why, surely John Hunter is buried in this church, was the thought that immediately struck my mind: his remains ought certainly to be looked after; but who is to do it? I will try to rescue his remains. If I fail there will be no harm done."

[32] "Curiosities of Natural History," Fourth Series, pp. 225 and 226.

[33] I take pleasure in giving the following brief account of the funeral rites at the re-interment of the remains of Hunter, because such information is not readily accessible to the reader:

Very great interest had been excited among the profession when the intention of the Council of the College to undertake the pious duty of the removal to the Abbey had been made public, and a very numerous assemblage collected there early in the afternoon of the 28th of March; and it having been intimated that the choral service would be suited to the solemnity, which would take place immediately afterwards, the choir was crowded with medical men, of whom many had come from the country to testify their respect for John Hunter's memory.

The Musical Service consisted of—
Single Chant to Psalms.....*Turle.*
"Magnificat" and "Nunc dimittis".....*Farrant.*

ANTHEM.

"When the ear heard him." }
"His body is buried in peace." } .....*Handel.*

Soon after four o'clock the procession, headed by the vergers, passed from the Jerusalem Chamber into the Abbey, arranged in the following order:—

The Dean of Westminster.	W. Hunter Baillie, Esq.
Frank T. Buckland, Esq.	Richard Owen, Esq.
The President of the Royal College of Physicians.	Earl of Ducie.

The President of the Royal College of Surgeons of England.
The Vice-Presidents and
The Council of the Royal College of Surgeons.
The Censors of the Royal College of Physicians.
The Master of the Society of Apothecaries of London.

The Director-General of the Navy Medical Department.	The President of the Linnæan Society.

And other Members of the Medical Profession.

The procession having reached Abbot Islip's Chapel, and the coffin, uncovered and placed on a bier, having been raised on shoulders, proceeded round St. Edward's Chapel into the nave, the Dead March in "Samson" being played by Mr. Turle, and continued till the grave was reached, in which the

REMAINS OF JOHN HUNTER

were lowered whilst the pealing organ poured forth Handel's grand and sublime chorus, well suited to this memorable occasion—

HIS BODY IS BURIED IN PEACE, BUT HIS NAME LIVETH EVERMORE.*

*A very handsome ornamental brass tablet now covers the tomb, upon which is the following inscription, written by John Flint South, the well-known author of Memorials of the Craft of Surgery:—

"O Lord, how manifold are Thy Works."

Beneath
are deposited the remains of
JOHN HUNTER.
Born at Long Calderwood, Lanarkshire, N. B.,
on the 13th of February, 1728.
Died in London on the 16th of October, 1793.
His Remains were removed from the Church
of St. Martin's-in-the-Fields to this Abbey
on the 28th of March, 1859.

The Royal College of Surgeons of England have placed this Tablet over the grave of Hunter, to record their admiration of his genius, as a gifted interpreter of Divine Power and Wisdom at work in the Laws of Organic Life, and their grateful veneration for his services to mankind as the founder of Scientific Surgery.

"In wisdom hast Thou made them all."—Ps.civ. 24.

ing the erection of a statue to Hunter. Mainly through the efforts of John Flint South, one of the vice-presidents of the college, the sum of £1172 17*s.* 1*d.* was promptly raised for that object. The work was intrusted to Mr. Weekes, the eminent sculptor, who produced an admirable likeness which was completed in 1864, and now graces the first room on the lower floor of the museum of the college.

On May 29, 1886, a statue of John Hunter was unveiled in the University museum, at Oxford, England, on which occasion Sir James Paget was one of the speakers. A bust of Hunter, along with that of Newton, of Hogarth, and of Reynolds, occupies one of the four corners of Leicester Square, London; and there is a window to his memory in the church of St. Mary Abbott's, Kensington.

Another constant reminder of John Hunter and his unwearied labors is the Hunterian laboratory connected with the medical school of *this* university—the leading institution of its kind on the Western Hemisphere. Founded in 1906, it stands to-day a pioneer in the diffusion of such knowledge as Hunter endeavored to convey. Truly, "its line has gone out to the ends of the earth;" and it not only reflects lasting credit upon those who nurtured it and gave it birth, but also bears with dignity an appellation which can justly be applied to it; namely, "the greatest of all memorials to John Hunter."

SUMMARY OF LIFE WORK.[24]

John Hunter not only laid the foundations of scientific surgery, but his name is also indelibly associated with the rise and progress of histology, physiology, and comparative anatomy.

In the language of Professor Gross:

He was not only a great surgeon, a wise physician, and a great anatomist and physiologist, human and comparative, but, above all, he was a philosopher whose mental grasp embraced the whole range of nature's works, from the humble structure to the most complex and the most lofty. He was emphatically the Newton of the medical profession, and what Pope said of that great philosopher may, by paraphrase, be said with equal force and truth of Hunter:

> "Nature and Nature's laws lay hid in night;
> God said 'Let Hunter be,' and all was light."

Hunter is peerless in the history of British surgery; and after the lapse of nearly a century the profession turns to his memory with increased reverence for his transcendent genius, his matchless ability, and his unequalled services. To say that he was simply the founder of scientific surgery would fall far short of his great deserts; to do him full justice we must add that he was the father also of scientific zoology and of comparative physiology.

[24] British surgeon, anatomist and physiologist. First to discover the system of vessels known as lymphatics, although the function of these vessels was suggested by his brother, William Hunter. His studies of tendons laid the foundation for the operation for the cure of club feet. His experiments to determine the blood-supply for the growing antler of a deer led to the discovery of the "collateral circulation of the blood"—one of the most important discoveries in surgery. This led directly to his invention of the "Hunterian" operation for aneurism, an operation still in use, and which has made the name of Hunter immortal in the annals of surgery (Henry Smith Williams).

It is interesting to record that James Jackson, Jr., M. D., of pious memory, in a letter to his father, is loud in his praise of Hunter and his work, as the following extract will show:[25]

London, September 28, 1832.

Would you were here, my dear father, to enjoy with me the study of John Hunter's works, and to kindle with me in my admiration of his genius; the elevation and extent of which I

Beneath
are deposited the Remains of
JOHN HUNTER
Born at Long Calderwood, Lanarkshire
on the 13th of February, 1728.
Died in London on the 16th of October 1793
His Remains were removed from the Church
of St. Martin's in the Fields, in this Abbey
on the 28th of March 1859.
The Royal College of Surgeons of England
have placed this Tablet over the grave of
Hunter, to record their admiration of
his genius as a great interpreter of the
Divine Power and Wisdom as work in
the Laws of Organic Life and their general
veneration for his services to mankind as
the Founder of Scientific Surgery

COPY OF THE INSCRIPTION ON JOHN HUNTER'S TOMB IN WESTMINSTER ABBEY.

know not even now; nor does any man living, though my conceptions of his vast and comprehensive mind have been greatly elevated within the last fortnight. His museum is intelligible to no one in its full extent. The materials there collected and arranged, are often indicative of peculiar ideas, which are lost to the world for want of their great interpreter.

[25] Memoir of James Jackson, Jr., M. D., p. 160.

For more than forty years Hunter toiled as never man toiled; and yet, so it is stated, his doctrines were not well received by his contemporaries. Some were incited by prejudice, some by envy and jealousy, whilst still others were impelled by a spirit of indifference. Is it any wonder, then, that he should have become discouraged at times? "The few good things I have been able to do," he was heard to say, "have been accomplished with the greatest difficulty, and encountered the greatest opposition."

His labors increased with his years and with his honors; and when the end came, sudden though it was, it found him assiduously engaged in those pursuits which had been the joy and the delight of his life. He pursued studies in every department of natural history and surgery, and added luster to them all. His "mind was like a bee-hive"—full of industry, method, and the laying-up of stores for future use; and whatever he touched he adorned. Hunter had a high opinion of putting one's thoughts into writing. "It resembles," he said, "a tradesman taking stock, without which he never knows what he possesses or in what he is deficient." The infinite variety and wide range of his mental qualifications, is shown in a chronological list of his works and papers, to be found in Ottley's "Life of Hunter" (pp. 189-192).

So far as a bank account was concerned, John Hunter died a poor man; yet who is there among you who would call him poor? His name comes down to us as one of the great figures of the eighteenth century—a century famous for a wonderfully rich harvest of discovery in anatomy and physiology, in medicine and surgery. The mystery, however, is solved when we remember that he rose regularly at four o'clock in the morning, and seldom retired before twelve o'clock at night. The compliment which Cecil paid to Sir Walter Raleigh was equally deserved by Hunter: "I know he can labor terribly." His mind was incessantly in his work.[36]

[36] The following is a summary with the ages and the dates, of the chief events of his life (after Professor Owen, "The Scientific Works of John Hunter," vol. ii, pp. 492, 493. Sir James Paget, in the Hunterian oration for 1877, pp. 37 and 38, also gives a fine calendar of the chief events of Hunter's life):

Age.	Year.	Event.
	1728	Birth, 13th or 14th of February, at Long Calderwood, Kilbride, near Glasgow.
20	1748	Migration to London to his brother, Dr. Wm. Hunter.
25	1753	Entered as "Gentleman Commoner" at St. Mary's, Oxford.
28	1756	House-surgeon at St. George's Hospital, London.
29	1757	Prosector and Demonstrator in Dr. Wm. Hunter's Theatre of Anatomy, in Great Windmill Street.
33	1761	As Surgeon in the Army, accompanied the Expedition to Belleisle.
35	1763	Returned from Portugal to London.
38	1766	Communicated his first Paper, printed in the Transactions of the Royal Society, entitled "Anatomical Description of an Amphibious Bipes."
39	1767	Elected Fellow of the Royal Society of London.
40	1768	Became "Member of the Corporation of Surgeons."
41	1769	Elected Surgeon to St. George's Hospital: had his first attack of the gout.
42	1770	Jenner became Hunter's House-pupil.
43	1771	Married Miss Home. Published his "Treatise on the Natural History and Diseases of the Human Teeth."
44	1772	Communicated his Paper "On the Torpedo" to the Royal Society. Mr. (afterwards Sir Everard) Home, his wife's brother, became his pupil.
45	1773	His first attack of "Angina pectoris."
46	1774	Gave his first Course of Lectures "On the Principles of Surgery."
48	1776	Appointed Surgeon Extraordinary to His Majesty. Mr. Wm. Bell became Hunter's assistant.
55	1783	Purchased the lease of the house No. 29 Leicester Square, and the ground extending to and including a house in Castle Street, and began to build his Museum on the intervening space.
57	1785	Museum completed, and arrangement of the Preparations begun.
58	1786	Published his "Observations on the Animal Economy," and his work "On the Venereal Disease." Made Dep. Surgeon-General to the Army.
59	1787	Preparations arranged in the Museum, which was opened to Visitors.
61	1789	Mr. Wm. Bell left Hunter for an appointment in Sumatra, where he died in 1792.
64	1792	The printing of the work "On the Blood and Inflammation," was commenced. Mr. Wm. Clift was articled as an "apprentice" to John Hunter.
65	1793	Died suddenly, October 16th, at St. George's Hospital: was buried in St. Martin's Church.
	1859	Was re-interred, March 28th, in Westminster Abbey.

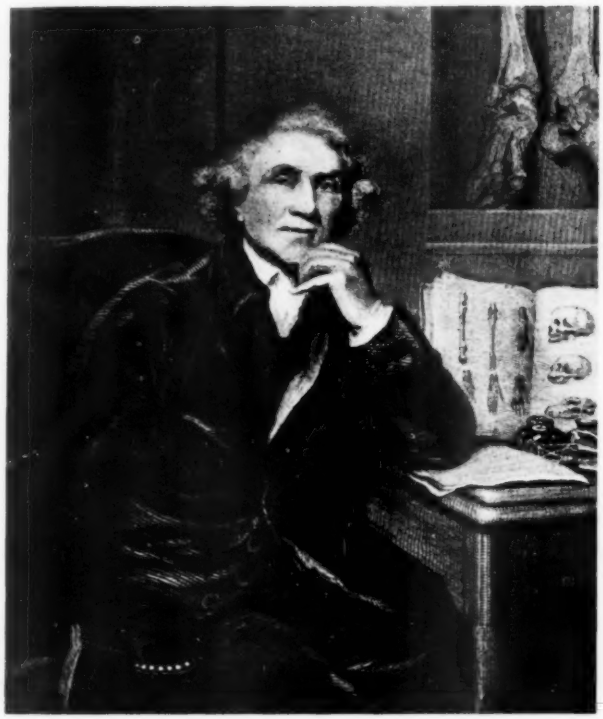
Surgery of to-day is immensely indebted to Hunter.[37] His constant saying was: "We are but beginning to learn our profession." Dead though he has been for an hundred and twenty years, yet the principles which he taught and the foundations which he laid have become the woof and warp of the surgical fabric of the present day. The ever-widening circle of his influence still abides.

To quote again from Professor Gross:

> The lesson of the life of such a man, in every respect so grand and colossal, so powerful and majestic in intellect, and so indissolubly associated with the scientific history of his age and country, is full of instruction, not only to the members of our own profession, but to men in every avenue and pursuit in life. His example of industry and of steady, persistent effort in the cause of human progress reflects the highest credit upon his character, and is worthy of the imitation of every student ambitious of distinction and usefulness. Nowhere, either in ancient or modern times, can there be found a nobler pattern for the formation of a truly scientific career. Commencing life as an erratic, hesitating youth, undecided what to do, or whither to turn, without any promise or definite aim, a source of constant annoyance to his

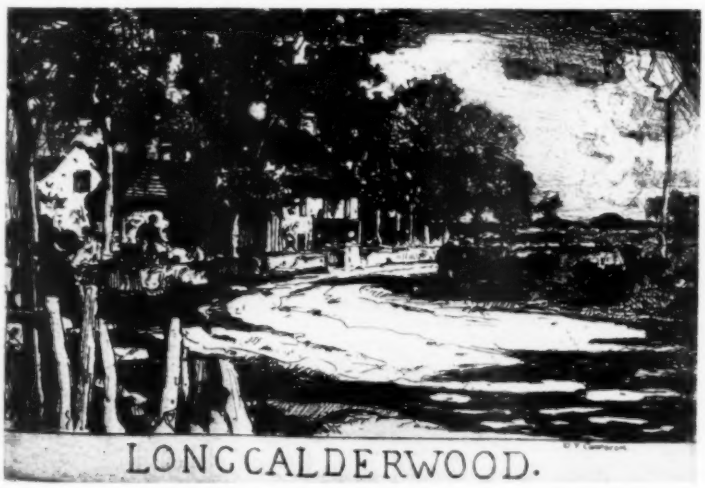
[37] In "Leisure Hour," No. 385, May 12, 1865, Frank Buckland wrote:

> Without slighting the labours of other great surgeons and anatomists, it may be confidently affirmed that there is not a man, woman, or child among us who, when struck by the sting of disease, and receiving relief from the art of medicine, does not directly or indirectly receive relief to his suffering from the discoveries of John Hunter.



JOHN HUNTER. ENGRAVING OF REYNOLDS' PORTRAIT.

DR. WILLIAM HUNTER, HUNTER'S BROTHER AND FIRST TEACHER IN ANATOMY.

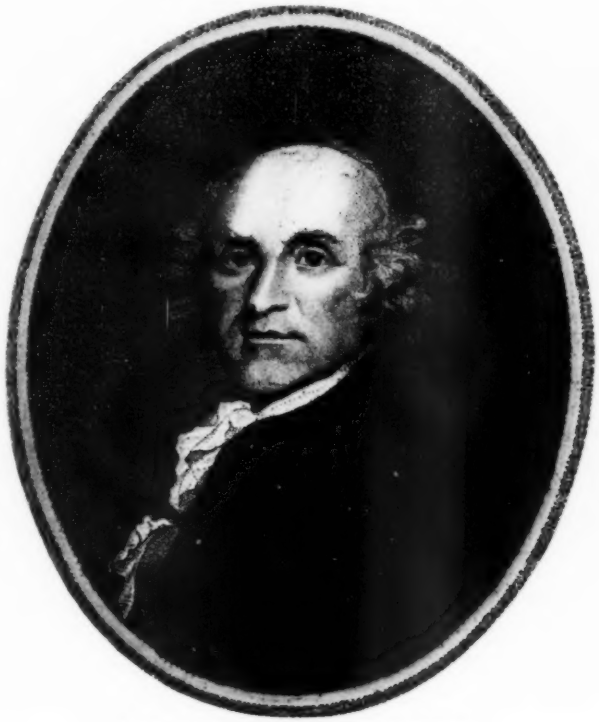


LONG CALDERWOOD, THE BIRTHPLACE OF HUNTER.

"THE DISSECTING ROOM." By ROWLANDSON.

The figure standing up above the rest is William Hunter; his brother John is on his right hand (side), and Matthew Baillie is the next figure to William Hunter on the left; Cruikshank is seated at the extreme left of the picture, with Hewson in attendance on the rest of the subjects on the middle table.

WM. HUNTER'S DISSECTING-ROOM.



JOHN HUNTER. AFTER JOSI, SCULPTOR.

JOHN HUNTER. AFTER A MEDALLION TAKEN IN 1791.

JOHN HUNTER. PENCIL DRAWING BY HOLLAND.

JOHN HUNTER'S BOOKPLATE WITH ARMORIAL BEARINGS AND MRS. HUNTER'S BOOKPLATE WITH HER MONOGRAM.

family and of disappointment to his friends, he became eventually one of the most illustrious men in all Europe, leaving behind him imperishable monuments of patient research, of vast genius, and of wonderful philosophical acumen, destined to grow brighter and more stately as the ages roll on, and as men become more and more appreciative of man's work and of man's intellectual powers.

Hunter, to use Dante's phrase, followed his star; and in finding the good that he wished for humanity, found, along with it, name and fame.

His death though precipitate, and in a measure unexpected, was doubtless as he would have wished it to be. He was thereby mercifully delivered from those "cold gradations of decay"—that time in life when old age creeps on apace, and the hands tremble and the eyes grow dim.

Thus ended a career of almost unexampled industry and usefulness; a life abounding in zeal and good deeds, which made the world wiser and better. So we shall leave him—beloved during life, honored at death, secure in his fame; sentiments most beautifully expressed in the following verses written by Mrs. Hunter,[28] and originally intended for the inscription upon her husband's grave-stone:

Here rests in awful silence, cold and still,
One whom no common sparks of genius fired;
Whose reach of thought Nature alone could fill,
Whose deep research the love of Truth inspired.

Hunter! if years of toil and watchful care,
If the vast labours of a powerful mind
To soothe the ills humanity must share,
Deserve the grateful plaudits of mankind,—

Then be each human weakness buried here
Envy would raise to dim a name so bright:
Those specks which in the orb of day appear
Take nothing from his warm and welcome light.

[28] In 1804, eleven years after Hunter's death.

Acknowledgment is hereby gratefully made to the president of this society, Dr. Henry Barton Jacobs, for much valuable assistance and kindly encouragement so cheerfully given; to its secretary, Dr. Thomas B. Futcher; to Dr. George H. Whipple, of the Hunterian laboratory; to Sir Rickman Godlee, president of the Royal College of Surgeons of England; and last, but by no means least, to my photographer, Mr. Harry B. Weaver, of this city, who has been untiring in his efforts to prepare a series of accurate and complete photographs.

NOTES AND NEWS.

Dr. A. D. Atkinson is Physician in Chief to St. Agnes Hospital, Baltimore.

Dr. John Auer is Associate Member, Department of Physiology and Pharmacology, Rockefeller Institute, New York City.

Dr. J. R. B. Branch is Attending Gynecologist to the Macon Hospital, and Anæsthetist to the Williams Private Sanitarium, Macon, Ga.

Dr. Walter V. Brem is Professor of Pathology and Bacteriology in the Los Angeles Department of the College of Medicine of the University of California.

Dr. J. S. Brotherhood is Associate Physician, the Sanitarium, Clifton Springs, N. Y.

Dr. J. I. Butler is President and Manager of the Rodgers Hospital, Tucson, Arizona.

Dr. John W. Churchman is Assistant Professor of Surgery, Yale Medical School, and Assisting Visiting Surgeon, New Haven Hospital.

Dr. A. L. Fisher is Assistant in Orthopedic Surgery, Stanford University, San Francisco, Cal.

Dr. Emil Goetsch is Assistant in Surgery, Harvard Medical School, and Resident Surgeon, Peter Bent Brigham Hospital, Boston, Mass.

Dr. Ernest G. Grey is Assistant Resident Surgeon, Peter Bent Brigham Hospital, Boston, Mass.

Dr. F. Webb Griffith is Surgeon to the Mission, Biltmore and Meriwether Hospitals, Asheville, N. C.

Dr. Louis P. Hamburger, in addition to his appointment in the Johns Hopkins Hospital Dispensary, is Attending Physician to the Union Protestant Infirmary, Hebrew Hospital, Hospital for Women of Maryland, Church Home and Infirmary and Children's Hospital School.

Dr. C. W. Hennington is Surgeon to the Rochester State Hospital, and Surgeon to Outpatient Department of the Rochester General Hospital.

Dr. Arthur D. Hirschfelder is Professor of Pharmacology and Director of the Department of Pharmacology, University of Minnesota Medical School.

Dr. J. Gardner Hopkins is Associate in Bacteriology, Columbia University. Address: 350 Washington Avenue, Brooklyn, N. Y.

Dr. Henry T. Hutchins is Assistant in Gynecology, The Harvard Medical School, Surgeon to the Outpatient Department, The Free Hospital for Women, Brookline, Mass.; Consulting Gynecologist, Rufus S. Frost General Hospital, Chelsea, Mass., and Consulting Gynecologist to the Memorial Hospital, Pawtucket, R. I. Address: 374 Marlborough Street, Boston, Mass.

Dr. Hans Lisser is Assistant in Medicine, the Washington University Medical School, and Resident Pathologist, the Washington University Hospital, St. Louis, Mo.

Dr. David R. Lyman is Clinical Lecturer on Tuberculosis, the Yale Medical School.

Dr. F. W. Lynch is Assistant Professor of Gynecology and Obstetrics, University of Chicago, and Attending Gynecologist and Obstetrician, the Presbyterian Hospital, Chicago, Ill.

Dr. Charles C. Norris is Instructor in Gynecology, University of Pennsylvania, Assistant Gynecologist, Hospital of the University of Pennsylvania, Attending Obstetrician to the Philadelphia Maternity Hospital, and Gynecologist and Obstetrician to the Henry Phipps Institute.

Dr. Francis W. Peabody is Alumni Assistant in Medicine, Harvard Medical School, and Resident Physician, the Peter Bent Brigham Hospital, Boston, Mass.

Dr. Louise Pearce is a member of the staff of the Rockefeller Institute for Medical Research, New York City.

Freiherr Clemens von Pirquet is Professor of Pediatrics, the University of Vienna, Austria; k. k. Obersanitätsrat, and Editor of the "Zeitschrift für die gesamte experimentelle Medizin."

Dr. H. W. Plaggemeyer is Director, the Department of Urological Surgery, Detroit General Hospital, and Visiting Surgeon, Manufacturers' Mutual Hospital, Detroit, Mich.

Dr. R. E. Powell is Demonstrator in Anatomy at McGill University, and Clinical Assistant in Surgery and Genito-Urinary Surgery, the Montreal General Hospital, Canada.

Dr. J. C. Pratt is Assistant in Surgery, the University of California. Address: 291 Geary Street, San Francisco, Calif.

Dr. Alexander Randall is Assistant Instructor in Surgery, University of Pennsylvania, and Assistant Surgeon in the Genito-Urinary Dispensary, University of Pennsylvania.

Dr. S. W. Schaefer is Resident Physician, the Glockour Sanitarium and Hospital, Colorado Springs, Colo.

Dr. Benjamin R. Schenck is Associate Professor of Gynecology, Detroit College of Medicine, Gynecologist to the Harper Hospital, and Consulting Obstetrician to The Woman's Hospital, Detroit, Mich.

Dr. W. G. Sexton is Medical Superintendent of the Hebrew Hospital, Baltimore, Md.

Dr. William Sharpe is Adjunct Professor of Surgery, the New York Polyclinic Hospital; Assistant Surgeon, the New York Neurological Institute, and Attending Neurologist, Hospital for Ruptured and Crippled. Address: 20 West 50th Street, New York City.

Dr. F. J. Sladen is Director, the Department of Medicine, Detroit General Hospital, Detroit, Mich.

Dr. J. M. Slemons is Professor of Obstetrics and Gynecology, the University of California, and Director of the Woman's Clinic, the University of California Hospital. Address: 3404 Clay Street, San Francisco, Calif.

Dr. Joseph T. Smith, Jr., is Instructor in Gynecology, Western Reserve University Medical Department; Assistant Surgeon, Dispensary of Lakeside Hospital, and Western Reserve University Gynecological Department.

Dr. A. de T. Valk is Visiting Physician to the Twin City Hospital, Winston-Salem, N. C., and Lecturer in Anatomy and Physiology to the nurses of that institution.

Dr. A. Raymond Stevens is Instructor in Genito-Urinary Surgery, New York University; Assistant Attending Genito-Urinary Surgeon to Bellevue Hospital, and Chief of the Genito-Urinary Clinic, Presbyterian Hospital Dispensary. Address: 40 E. 41st Street, New York City.

Dr. Solomon Strouse is Associate Attending Physician, the Michael Reese Hospital; Directing Physician, Chicago-Winfield Tuberculosis Sanitarium; Attending Dispensary Physician, Municipal Tuberculosis Sanitarium, and Instructor in Medicine, the University of Illinois. Address: 104 S. Michigan Ave., Chicago, Ill.

Dr. J. H. J. Upham is Professor of Medicine and Clinical Medicine in Sterling, Ohio, Medical College; Attending Physician to St. Francis Hospital, Consulting Physician to Mt. Carmel Hospital, and President of the Ohio State Medical Association. Address: Columbus, O.

Dr. Douglas Vanderhoof is Associate Professor of Clinical Medicine, Medical College of Virginia.

Dr. H. I. Wiel is Assistant in Medicine, Mt. Zion Hospital, San Francisco, Calif.

Dr. Otis B. Wight is Assistant Professor of Gynecology, Medical Department, University of Oregon.

Dr. Helen Watson Winternitz is Lecturer on Anatomy, Johns Hopkins Hospital Training School for Nurses.

Dr. Eleanor B. Wolf is House Physician, New York Infirmary for Women and Children.

Dr. J. M. Wolfsohn is Instructor in Neurology, Leland Stanford Jr. University; Neurologist to the San Francisco Hospital, and Neurologist to the Children's Hospital, San Francisco, Calif.

Dr. P. G. Woolley is Professor of Pathology and Head of the Department of Pathology and Bacteriology, Medical Department, University of Cincinnati, and Director of the Laboratories of the Cincinnati Hospital.

NOTES ON NEW BOOKS.

Practical Physiological Chemistry. By SYDNEY W. COLE, M. A. 7/6. Third Edition. (*Cambridge [Eng.]: W. Heffer & Sons, Ltd., 1913.*)

This work is intended as an exercise book, largely to aid students to pass examinations in medical chemistry, and it is so arranged as to be useful for students who are not thoroughly grounded in chemistry. Its third appearance would seem to indicate that it has met with a certain success in England, and it may be used by some schools in this country. The author discusses the proteins, carbohydrates and fats, then passes to the chemistry of some foods, the composition of the digestive juices, and the action of certain enzymes. After these introductory chapters he takes up the blood, bile, and urine, and has a final chapter on the detection of substances of physiological interest.

The Psychoneuroses and Their Treatment by Psychotherapy. By PROFESSOR J. DEJERINE AND DR. E. GAUCKLER. Translated by Smith Ely Jelliffe, M. D. $4.00 (*Philadelphia and London: J. B. Lippincott Company, 1913.*)

At a moment when so much attention is paid to mental disorders, it is all important to have all the aid to be obtained from every source, and it is especially valuable to secure the opinions of foreigners whose work along these lines has been more thorough and exhaustive than ours up to the present. So few of our physicians read French easily that they may consider themselves very fortunate to have secured this admirable translation of an important work. Dejerine's practice and writings have been of the utmost interest to all psychiatrists, for he has worked out his own therapy with originality and has been a leader in the modern treatment of psychoneuroses. His book is divided into three parts; the first analytical, or "the study of all the symptoms which are observed in the course of the psychoneuroses"; the second synthetic, or the explanation of "the general mechanism of the foundation of the psychoneuroses, as well as their variations and nature"; the third therapeutic, which needs no definition. This is a book well worth study by the general practitioner.

Irritability. By MAX VERWORN, M. D. (*New Haven: Yale University Press. London: Henry Frowde, 1913.*)

Dr. Verworn, Professor at the University of Bern, was invited to deliver the Silliman Lectures at Yale University in 1911, and this volume is the result. The author's reputation as a brilliant physiologist has been long established, and his work is, therefore, of very great interest as presenting for the first time in English a comprehensive treatise of irritability or the "effect of stimuli on living substance." To the advanced student of physiology it will be a great aid, and stimulus to new investigations along fresh lines for Dr. Verworn is most suggestive and his book is full of meat.

An Elementary Study of the Brain. By EBEN W. FISKE, M. D. Illustrated. $1.25. (*New York: The Macmillan Company, 1913.*)

For certain college and possibly high-school courses this is an excellent work, from which students will get a very clear idea of the structure of the brain. It is based on the dissection of the brain of the sheep, and should prove useful just as books detailing

the anatomy of the cat, frog, and lobster are used for demonstration courses in biology or zoology. With this book an energetic, bright student, working alone, could acquire much information during a summer holiday, and thus prepare himself for more advanced work in the anatomy of the human brain.

Les Épanchements du Péricarde. Par DOCTEUR GERMAIN BLECHMANN. (*Paris: J. B. Baillière et Fils, 1913.*)

As is common with French theses, the author dedicates his work to many of his professors and others, amongst whom it is pleasant to note the name of Thomas Morgan Rotch; and in the text he refers frequently to Rotch's early experimental work on pericarditis. The thesis is a careful study of this disease; the author believes that the subxyphoid puncture is the best means of diagnosticating a pericardial effusion, and that, along with surgical measures that may be necessary there is room for a new active medical treatment which is being developed. This treatment, as the author states, will justify Wright's so frequently repeated remark that "the physician of the future will be an immunisator." A valuable bibliography accompanies the work, which is of special interest to the internist.

Sterility in the Male and Female and its Treatment. By MAX HÜHNER, M. D. $2.00. (*New York: Rebman Company, 1913.*)

Dr. Hühner's findings are based upon experimental work of a nature unpleasant to undertake, and he deserves credit for his investigations, which, presented with greater modesty, would make a better impression. One-half this fair-sized volume of 250 pages gives the author's views, as based largely on his own work, the other half is merely a record of his case histories. The whole might have been condensed with profit into less than one-half and the results offered in a more concise and practical manner. That the author has added something to our knowledge of this trouble is unquestionable, and so the book has its value, but its value hardly calls for book form. As a journal article it would have had many readers and found its true place.

Massage: Its Principles and Technic. By MAX BOHM, M. D., Edited, with an introduction, by CHARLES F. PAINTER, M. D. Illustrated. $1.75. (*Philadelphia and London: W. B. Saunders Company, 1913.*)

The illustrations of this book, with the simple accompanying text, make it an exceptionally useful one for both students and nurses. The general principles of massage are well described, and the size of the volume makes it acceptable. It does not pretend to cover very special forms of massage, as of the eye, the larynx, female generative organs, etc., but is limited to the massage of the leg, arm, back, abdomen, etc., such as is usually required of nurses and masseurs.

Sex: Its Origin and Determination. By THOMAS E. REED, M. D. (*New York: Rebman Company.*)

The author has prepared an interesting work to substantiate his theory that the origin and determination of sex, the course of acute disease, parturition, etc., are the result of the metabolic (anabolic and katabolic) cycle in man, but the proof he brings to bear is inconclusive. How far the human system and its many functions, both normal and abnormal are dependent on daily, weekly, or monthly cycles, is a much mooted question. Dr. Reed has brought together much material to demonstrate the effect of these cycles, but a good deal of the evidence is hypothetical, and the origin of sex still remains a problem to be worked out by experiment rather than by theorizing on such an uncertain factor as the lunar or tidal influence on the earliest forms of life.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1912. Illustrated. $5.50. (*Philadelphia and London: W. B. Saunders Company, 1913.*)

This is a fresh volume of very interesting papers from the Mayo Clinic. They have appeared before in various journals, but, gathered together in this handsome form, they furnish an excellent index of the broad scope and high quality of the work done by the Mayo brothers and their staff.

Summaries of Laws Relating to the Commitment and Care of the Insane in the United States. Prepared by JOHN KOREN. $1.00. Published by The National Committee for Mental Hygiene. (*New York, 1913.*)

The National Committee, in publishing this volume has done an excellent piece of work. The compilation of these laws is important for the physicians, lawyers, and social service workers, especially when our state legislatures are preparing to pass new or modify old laws in regard to the insane. As our views in caring for this class are undergoing radical changes, it is likely that the existing laws will be much changed within a few years, and, therefore, this volume will be of very great help to those intrusted with the preparation of new laws.

Burdett's Hospitals and Charities, 1913. Being the Year Book of Philanthropy and the Hospital Annual, containing an exhaustive record of hospital work for the year. By SIR HENRY BURDETT, K. C. B., K. C. V. O. (*London: The Scientific Press Limited, 28 and 29 Southampton Street, Strand, W. C.*)

This standard annual is now in the 24th year of publication. It seems surprising that, dealing as it does with the statistics of many thousand institutions, it should find it practicable to publish them fully at such an early date in the current year. The editor renews his plea for the establishment of an institution year by each hospital, to correspond with the calendar year, so that all statistics may be comparable for an identical period of time.

It is gratifying to read his expression of a willingness to furnish necessary information by letter to hospital officials who may desire instruction or advice in the line of hospital management or even of construction.

The book is of peculiar interest to Englishmen in English hospitals, because it treats largely of local conditions, such as "King Edward's Fund," the "League of Mercy," "Hospital Saturday and Sunday," and hospital conditions arising in consequence of the new compulsory insurance for workmen. These details, however, furnish valuable hints for the betterment of conditions throughout the world and teach lessons of general application.

Apropos of medical education, it is gratifying to see the Hospital Annual advocating grants from the government in aid of voluntary hospitals connected with medical teaching in recognition of the value of their educational work. Would that similar pecuniary recognition could come in the United States to those hospitals who are doing good service in the proper education of physicians and nurses. The book is full of material for thought and should be in the hands of every hospital superintendent.

Diseases of the Heart and Aorta. By ARTHUR D. HIRSCHFELDER, M. D. Second Edition. $6.00. (*Philadelphia and London: J. B. Lippincott Company.*)

It is a pleasure to announce the appearance of a second edition of this valuable work. Full discussions, with a valuable bibliography of the electrocardiograph, of the cardiac irregularities, of the rôle of carbon dioxide in heart disease, of syphilitic disease of the aorta, and of chronic hypertension, has brought the new edition abreast of the many new developments in the realm of cardiovascular pathology and make it the most useful of all English text-

books dealing with this field. As in the first edition, the numerous illustrations greatly assist one in obtaining a proper comprehension of the subject matter.

George Crocker Special Research Fund. Vol. IV. Studies in Cancer and Allied Subjects. (*New York: Columbia University Press, 1913.*)

The eight papers in this handsomely printed, and finely illustrated volume all deal with the anatomy and development of the salivary glands in the mammalia. Carmalt, Huntington, and Schulte are the three contributors, the work of the two latter amplifying observations already begun and reported upon by Carmalt, who died in 1905, after having made interesting investigations of the problem noted. The salivary glands were studied in the hope of throwing light "on the phylogenetic aspect of the epithelial neoplasms of this area." The volume is an important addition to our knowledge of these glands.

Acute Poliomyelitis (Heine-Medin's Disease). By Dr. Ivan Wickman. Translated by Dr. F. Wm. J. A. M. Maloney. $3.00. (*New York: The Journal of Nervous and Mental Disease Publishing Company, 1913.*)

This is an important contribution to the literature of the disease which, within the last few years, has been so profoundly studied with such brilliant results in America. To students at Harvard belongs the honor of having found the transmitting agent in the fly, and to Drs. Flexner and Noguchi of the Rockefeller Institute the glory of having isolated the causative organism. The monograph by Dr. Wickman gives an excellent picture of the disease, and it is fortunate that the editors of the Nervous and Mental Disease Monograph Series selected it for translation.

Pathological Inebriety: Its Causation and Treatment. By J. W. Natley Cooper. $1.50. (*New York: Paul B. Hoeber, 1913.*)

Physicians who undertake the scientific care of inebriates will find this small brochure of value. Dr. Cooper has had a large experience with this class of patients, and what he says in regard to their treatment is well worth careful reading and consideration. Chronic or periodic drinkers are extremely difficult to treat so as to effect a radical cure and prevent their returning to their old habits, and, therefore, any serious work of this nature is useful.

Vaccine and Serum Therapy. By Edwin Henry Schorer, M. D. Second Revised Edition. $3.00. (*St. Louis: C. V. Mosby Company, 1913.*)

In the last four years, since this book first appeared in 1909, vaccines and serum therapy have been much studied and we have a better comprehension of their value than at that time. Dr. Schorer has incorporated the newer findings in his second edition and otherwise added to his work, which can be recommended to the profession as a thorough and clear presentation of the subject.

A Reference Handbook of The Medical Sciences. Third Edition. Edited by Thomas Lathrop Stedman, M. D. Vol. II. BAD-CHL. (*New York: William Wood & Co., 1913.*)

The three longest articles in this volume, as might almost be guessed, are on the brain, 165 pages; the blood, 125; and the breast, 55. These are well prepared, and, in view of their importance in medicine, not too long. Cancer is dealt with in 15 pages, which seems short. But this merely draws attention to one of the obvious difficulties in the preparation of such a handbook. Different contributors cannot be expected to treat their subjects in similar manner, for one will write profusely, the other briefly and compactly. The original handbook was highly appreciated by the profession in its day, and there is no doubt that Dr. Stedman's will prove even more complete and valuable when finished. The two volumes just issued promise excellently for the success of the entire eight. Anyone who undertakes such a work deserves the hearty thanks of all its readers, and it is certain that the profession-at-large will warmly endorse this new edition.

Indigestion, Constipation and Liver Disorder. By G. Sherman Bigg, F. R. C. S. (Edinburgh). $1.50. (*Hoeber: New York, 1913.*)

This is a book of slight value and an unpleasant impression is aroused in looking through it to find that remedies are quoted with the makers' names or initials, *e. g.*, P. D. & Co.; B. W. & Co.; Fairchild; Mellin; Messrs Kirby of Newman St.; Van Horn and Sautell, etc.; as though the author were writing to advertise the products of various firms.

Blood-Pressure, from the Clinical Standpoint. By Francis Ashley Faught, M. D. Illustrated. $3.00. (*Philadelphia and London: W. B. Saunders Company, 1913.*)

The author speaks of this book as a "little work," but it covers 270 fair sized pages. As there is no other comprehensive book on blood-pressure in English this one will serve the student well; in it he will find most of the needed information to guide him along his way. Printed on thick paper it is heavier than necessary for which the publishers are to blame.

Blood Pressure in General Practice. By Percival Nicholson, M. D. $1.50. (*Philadelphia and London: J. B. Lippincott Company, 1913.*)

"This treatise therefore starts with the assumption that the writer is dealing with a new subject, and an effort has been made to present the material given in as simple a manner as possible." The manner has been carried out too simply, with the result that the book in places is not clear, and as an entity has small value.

Diagnostic Methods: Chemical, Bacteriological, and Microscopical. By Ralph W. Webster, M. D. Third Edition, Revised and Enlarged. Illustrated. (*Philadelphia: P. Blakiston's Son & Co., 1913.*)

Three editions within four years speaks well for the popularity of this work, and it deserves this mark of success. The author keeps his book up-to-date, and has covered the ground thoroughly, so that the work is a serviceable one for students and general practitioners.

Manual of Operative Surgery. By John Fairbairn Binnie, C. M. (Aberdeen), etc. Sixth Edition, Revised and Enlarged. Illustrated. $7. (*Philadelphia: P. Blakiston's Son & Co., 1913.*)

This surgery well merits its popularity and to each edition the author adds something to bring the work up-to-date and thus make it really serviceable for the advanced surgeon. Rare and difficult operations are described in detail, because any man, who rightly calls himself a surgeon, should know how to perform the simpler operations when he commences practice. It is an excellent book, clearly written by a man of wide experience and sound judgment.

A Manual of Venereal Diseases. By Sir Alfred Keogh, K. C. B., and others. Second Edition. Revised and largely Rewritten. $3.75. (*London: Henry Frowde and Hodder & Stoughton, 1913.*)

This work is essentially a treatise on syphilis, as out of 280 pages, 230 are devoted to this disease. Discussion of gonorrhœa, soft-chancre and balanitis takes up the remaining pages. Im-

portant as syphilis is, yet treated only as a venereal disease, the disproportion of space allotted to it and gonorrhœa seems a mistake, since the latter trouble, from several points of view, is as far reaching in its disastrous results as the former. It is, leaving this point out of consideration, a useful book for the general practitioner, and we are glad to note its second appearance.

Malaria. By GRAHAM C. HENSON, M. D. Illustrated. $2.50. (*St. Louis: C. V. Mosby Company, 1913.*)

Dr. Bass in a brief introduction warmly indorses this work, and his endorsement is merited. Dr. Henson has written an excellent manual on the etiology, pathology, diagnosis, prophylaxis, and treatment of this disease, and physicians throughout the South will find it most useful. It is a good practical handbook, covering all the essential features of malaria, which, unfortunately, is not yet generally recognized as one of our worst diseases, and in parts of the country most prevalent. It is to be hoped that Dr. Henson's treatise will help to awaken the public to the urgent need of action in eradicating malaria wherever it exists, and this is generally not a difficult or very costly task.

A Manual of Surgery. By FRANCIS T. STEWART, M. D. Third Edition. Illustrated. $4. (*Philadelphia: P. Blakiston's Son & Co., 1913.*)

This is one of the many surgical manuals, which are on the market, and which have found favor with the profession. Students of surgery will be glad to have the revised edition of Dr. Stewart's work which contains important additions and is a practical book. As it covers a great deal of ground, the author does not go into minute detail as to operations, but the general outlines are clearly presented.

Vicious Circles in Disease. By JAMIESON B. HURRY, M. D. (Cantab.). Illustrated. Second and Enlarged Edition. $3. (*Philadelphia: P. Blakiston's Son & Co., 1913.*)

This work can be read with benefit by the general practitioner, for unless his experience is large he frequently fails to recognize the existence and number of these vicious circles, which are found associated with almost all organs and systems. The make-up of the book is more like that of a gift-book, than a serious medical work—pages gilded on their edges, and unusual type might cause the reader to question the value of the work as he picks it up, and to put it aside as unimportant. It is unfortunate that it should appear in this somewhat fantastic dress, for it merits attention.

Progressive Medicine. Edited by HOBART AMORY HARE, M. D., etc. Assisted by LEIGHTON F. APPLEMAN, M. D., etc. Vol. III. September, 1913. (*Philadelphia and New York: Lea & Febiger.*)

Ewart of London, Gottheil of New York, with Davis and Spiller of Philadelphia respectively review the diseases of the thorax and its viscera, dermatology and syphilis, obstetrics, and diseases of the nervous system. The reviews are satisfactory and aid the busy doctor to keep himself abreast of the best thought and practice both here and abroad.

BOOKS RECEIVED.

Book on the Physician Himself and Things that Concern His Reputation and Success. By D. W. Cathell, M. D. The twelfth and final edition, enriched and strengthened by the author and his son, William T. Cathell, A. M., M. D. 1913. 8vo. 407 pages. F. A. Davis Company, Philadelphia.

Pathological Inebriety: Its Causation and Treatment. By J. W. Astley Cooper. With Introduction by Sir David Ferrier, M. D., F. R. S. 1913. 12°. 151 pages. Paul H. Hoeber, New York.

The Narcotic Drug Diseases and Allied Ailments. Pathology, Pathogenesis, and Treatment. By Geo. E. Pettey, M. D. Illustrated. 1913. 8°. 516 pages. F. A. Davis Company, Philadelphia.

Golden Rules of Diagnosis and Treatment of Diseases. Aphorisms, Observations, and Precepts on the Method of Examination and Diagnosis of Diseases, with Practical Rules for Proper Remedial Procedure. By Henry A. Cables, B. S., M. D. Second edition, revised and rewritten. 1913. 12°. 318 pages. C. V. Mosby Company, St. Louis.

Surgery of the Eye. By Ervin Török, M. D., and Gerald H. Grout, M. D. With 509 original illustrations, 101 in colors, and 2 colored plates. 1913. 8°. 507 pages. Lea & Febiger, Philadelphia and New York.

Clinical Pathology. By P. N. Panton, M. A., M. B., B. C., Cantab. With 13 plates (11 colored) and 45 illustrations in the text. 1913. 8vo. 446 pages. P. Blakiston's Son & Co., Philadelphia.

The Difficulties and Emergencies of Obstetric Practice. By Comyns Berkeley, M. A., M. D., B. C., Cantab., F. R. C. P., Lond., M. R. C. S., Eng., and Victor Bonney, M. S., M. D., B. Sc., Lond., F. R. C. S., Eng., M. R. C. P., Lond. With 287 illustrations. 1913. 8°. 787 pages. P. Blakiston's Son & Co., Philadelphia.

Text-Book of General Pathology. Edited by M. S. Pembrey and J. Ritchie. 1913. 8°. 773 pages. Longmans, Green & Co, New York; Edward Arnold, London.

Vaccine and Serum Therapy. Including also a Study of Infections, Theories of Immunity, Specific Diagnosis and Chemotherapy. By Edwin Henry Schorer, B. S., M. D., Dr. P. H. Second revised edition. 1913. 8°. 300 pages. C. V. Mosby Company, St. Louis.

Nervous and Mental Disease Monograph Series No. 16. Acute Poliomyelitis (Heine-Medin's Disease). By Dr. Ivan Wickman. Authorized English Translation by Dr. J. Wm. J. A. M. Maloney, F. R. S. Ed. Illustrated. 1913. 8°. 135 pages. The Journal of Nervous and Mental Disease Publishing Company, New York.

The Report of the Philadelphia Baby Saving Show and the Proceedings of the Conference on Infant Hygiene. Edited by the Publication Committee. Illustrated. 1913. 8°. 270 pages. Published by the Executive Committee.

General Index. Transactions of the Illinois State Medical Society, 1850-1898. Edited by Carl E. Black, A. M., M. D. 1913. 4°. 81 pages. Published under the Direction of the Illinois State Medical Society, Springfield.

Preventive Medicine and Hygiene. By Milton J. Rosenau. With chapters upon Sewage and Garbage, by George C. Whipple; Vital Statistics, by Cressy L. Wilbur: The Prevention of Mental Diseases, by Thomas W. Salmon. 1913. 8°. 1074 pages. D. Appleton & Co., New York and London.

Summaries of Laws Relating to the Commitment and Care of the Insane in the United States. Prepared by John Koren for the National Committee for Mental Hygiene. 1912. 8°. 297 pages. The National Committee for Mental Hygiene, New York.

Diseases of the Ear. By Philip D. Kerrison, M. D. 331 illustrations in text and 2 full pages in color. [1913.] 8°. 588 pages. J. B. Lippincott Company, Philadelphia and London.

Ophthalmoscopic Diagnosis. Based on Typical Pictures of the Fundus of the Eye, with Special Reference to the Needs of General Practitioners and Students. By Dr. C. Adam. Translated by Matthias Lanckton Foster, M. D. With 86 colored pictures on 48 plates and 18 illustrations in the text. [1913.] 4°. 229 pages. Rebman Company, New York.

A Course in Normal Histology. A Guide for Practical Instruction in Histology and Microscopic Anatomy. By Rudolph Krause. Translation from the German by Philipp J. R. Schmahl, M. D. With 30 illustrations in text and 208 colored pictures, arranged on 98 plates after the original drawings by the author. [1913.] 4°. Part I, 86 pages. Part II, 406 pages. Rebman Company, New York.

Therapeutics of the Gastro-Intestinal Tract. By Dr. Carl Wegele. Adapted and Edited, with Additions on the Diagnosis of the Diseases of the Esophagus [etc.]. By Maurice H. Gross, M. D., and I. W. Held, M. D. With 52 illustrations in the text and 2 figures in colors on one plate. 1913. 8°. 329 pages. Rebman Company, New York.

Sterility in the Male and Female and Its Treatment. By Max Hühner, M. D. 1913. 8°. 262 pages. Rebman Company, New York.

Sex: Its Origin and Determination. A Study of the Metabolic Cycle and Its Influence in the Origin and Determination of Sex, the Course of Acute Disease, Parturition, etc. By Thomas E. Reed, M. D. 1913. 8°. 313 pages. Rebman Company, New York.

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M. D., assisted by E. G. C. Williams, M. D. With an introduction by Victor C. Vaughan, M. D., LL. D. Second edition. Illustrated with forty-three engravings. 1913. 8°. 210 pages. C. V. Mosby Company, St. Louis.

Blood Pressure in General Practice. By Percival Nicholson, M. D. With seven illustrations. 1913. 12°. 157 pages. J. B. Lippincott Company, Philadelphia and London.

Les Épanchements du Péricarde Étude Clinique et Thérapeutique. La Ponction Epigastrique de Marfan. Par le Dorteur Germain Blechmann. 1913. 8°. 349 pages. J. B. Baillière et Fils, Paris.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. Vol. II, June, and Vol. III, Sept., 1913. 8°. 449 pages. Lea & Febiger, Philadelphia and New York.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. By Leading Members of the Medical Profession Throughout the World. Edited by Henry W. Cattell, A. M., M. D. Volume II. Twenty-third Series, 1913. 8°. 312 pages. J. B. Lippincott Company, Philadelphia and London.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by George Lovell Gulland, M. D., and James Ritchie, M. D. Vol. XII [1912]. 1913. 8°. Oliver and Boyd, Edinburgh.

A Text-Book of Midwifery. By R. W. Johnstone, M. A., M. D., F. R. C. S., M. R. C. P. E. Contains 264 illustrations. 1913. 12°. 485 pages. The Macmillan Company, New York.

Diseases and Injuries of the Eye. By William George Sym, M. D., F. R. C. S. E. With twenty-five full-page illustrations, sixteen of them in color and eighty-eight figures in the text. Also a type test-card at end of volume. 1913. 12°. 493 pages. The Macmillan Company, New York.

A Text-Book of Biology. By William Martin Smallwood, Ph. D. (Harvard). Illustrated with 243 engravings and 13 plates, in colors and monochrome. 1913. 8°. 285 pages. Lea & Febiger, Philadelphia and New York.

The Modern Treatment of Nervous and Mental Diseases. By American and British authors. Edited by William A. White, M. D., and Smith Ely Jelliffe, A. M., M. D., Ph. D. Volume II. Illustrated. 1913. 8°. 816 pages. Lea & Febiger, Philadelphia and New York.

The Psychoneuroses and their Treatment by Psychotherapy. By Professor J. Dejerine and Dr. E. Gauckler. Authorized translation by Smith Ely Jelliffe, M. D., Ph. D. [1913.] 8°. 395 pages. J. B. Lippincott Company, Philadelphia and London.

Diseases of the Stomach. Including Dietetic and Medicinal Treatment. By George Roe Lockwood, M. D. Illustrated with 126 engravings and 15 plates. 1913. 8°. 624 pages. Lea & Febiger, Philadelphia and New York.

Irritability. A Physiological Analysis of the General Effect of Stimuli in Living Substance. By Max Verworn, M. D., Ph. D. With diagrams and illustrations. 1913. 8°. 264 pages. Yale University Press, New Haven; Henry Frowde, London.

Burdett's Hospitals and Charities, 1913. Being the Year Book of Philanthropy and the Hospital Annual. By Sir Henry Burdett, K. C. B., K. C. V. O. Twenty-fourth year. 1913. 12°. 1047 pages. The Scientific Press, Limited, London.

General Malaria Committee. Proceedings of the Third Meeting held at Madras, November 18, 19 and 20, 1912. Fol. 289 pages. 1913. Government Central Branch Press, Simla.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Sciences. By various writers. First and second editions edited by Albert H. Buck, M. D. Third edition completely revised and rewritten. Edited by Thomas Lathrop Stedman, A. M., M. D. Complete in eight volumes. Volume II illustrated by numerous chromolithographs and seven hundred and fifty-four fine half-tone and wood engravings. 1913. 4°. 832 pages. William Wood & Co., New York.

Ergebnisse der Chirurgie und Orthopädie. Herausgegeben von Erwin Payr, Hermann Küttner. Sechster Band. Redigiert von H. Küttner. Mit 147 Textabbildungen. 1913. 8°. 716 pages. Julius Springer, Berlin.

Diseases of the Eye. A Handbook of Ophthalmic Practice. By G. E. de Schweinitz, A. M., M. D. With 360 illustrations and seven chromo-lithographic plates. Seventh edition, thoroughly revised. 1913. 8°. 979 pages. W. B. Saunders Company, Philadelphia and London.

Gonorrhea in Women. Its Pathology, Symptomatology, Diagnosis, and Treatment; Together with a Review of the Rare Varieties of the Disease which Occur in Men, Women and Children. By Charles C. Norris, M. D. With an Introduction by John G. Clark, M. D. Illustrated by Dorothy Peters. 1913. 4°. 521 pages. W. B. Saunders Company, Philadelphia and London.

Blood-Pressure from the Clinical Standpoint. By Francis Ashley Faught, M. D. Illustrated. 1913. 8°. 281 pages. W. B. Saunders Company, Philadelphia and London.

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Massage: Its Principles and Technic. By Max Böhn, M. D. Edited, with an Introduction, by Charles F. Painter, M. D. Illustrated. 1913. 8°. 91 pages. W. B. Saunders Company, Philadelphia and London.

Practical Bacteriology, Microbiology and Serum Therapy. (Medical and Veterinary.) By Dr. A. Besson. Translated and adapted from the fifth French edition by H. J. Hutchens, D. S. O., M. A., M. R. C. S., L. R. C. P., D. P. H. (Oxford). With 416 illustrations, 149 of which are colored. 1913. 8°. 892 pages. Longmans, Green, and Co., London. New York, Bombay, and Calcutta.

Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, Rochester, Minnesota. 1912. 8°. 842 pages. 1913. W. B. Saunders Company, Philadelphia and London.

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Stammering and Cognate Defects of Speech. By C. S. Bluemel. Vol. I. The Psychology of Stammering. Vol. II. Contemporaneous Systems of Treating Stammering: their Possibilities and Limitations. 1913. 12°. G. E. Stechert and Company, New York, London, Leipzig, Paris.

An Elementary Study of the Brain. Based on the Dissection of the Brain of the Sheep. By Eben W. Fiske, A. M., M. D. Illustrated with Photographs and Diagrams by the Author. 1913. 8°. 133 pages. The Macmillan Company, New York.

Diagnostic Methods. Chemical, Bacteriological and Microscopical. By Ralph W. Webster, M. D., Ph. D. Third edition, revised and enlarged with 37 colored plates and 164 other illustrations. 1913. 8°. 692 pages. P. Blakiston's Son & Co., Philadelphia.

Manual of Operative Surgery. By John Fairbairn Binnie, A. M., C. M. (Aberdeen). Sixth edition, revised and enlarged. With 1438 illustrations, number of which are printed in colors. 1913. 8°. 1251 pages. P. Blakiston's Son & Co., Philadelphia.

Oxford Medical Publications. Publishers: Henry Frowde, London; Hodder & Stoughton, London. The following 5 volumes.

A Manual of Venereal Diseases. Introduction by Sir Alfred Keogh, K. C. B. History, Statistics, Invaliding, etc., Brevet Colonel C. H. Melville, R. A. M. C. Clinical Pathology and Bacteriology, Brevet Colonel Sir William Leishman, K. H. P., F. R. S., R. A. M. C. Clinical Course and Treatment, Major C. E. Pollock, R. A. M. C. Second edition revised and largely re-written. With new matter by Major L. W. Harrison, R. A. M. C. 1913. 8°. 318 pages.

Skin Diseases in General Practice. Their Recognition and Treatment. By Haldin Davis, M. B., B. Ch., B. A. Oxon., F. R. C. S. Eng., M. R. C. P. 1913. 8°. 340 pages.

Tuberculin Treatment. By Clive Riviere, M. D. Lond., F. R. C. P. and Egbert Morland, M. B. and B. Sc. Lond., M. D. Berne. Second edition. 1913. 12°. 247 pages.

Gout, its Aetiology, Pathology and Treatment. By James Lindsay, M. D. (Edin.), M. R. C. P. (Lond). 1913. 12°. 212 pages.

Headache, its Varieties, their Nature, Recognition and Treatment. A Theoretical and Practical Treatise. By Dr. Siegmund Auerbach. Translated by Ernest Playfair, M. B., M. R. C. P. 1913. 12°. 208 pages.

Vicious Circles in Disease. By Jamieson B. Hurry, M. A., M. D. (Cantab.). With illustrations. Second and enlarged edition. 1913. 8°. 280 pages. P. Blakiston's Son & Co., Philadelphia.

Syphilis and the Nervous System. By Dr. Max Nonne. Authorized translation from the second revised and enlarged German edition by Charles R. Ball, B. A., M. D. 98 illustrations in text. 1913. 8°. 406 pages. J. B. Lippincott Company, Philadelphia and London.

A Manual of Surgery. By Francis J. Stewart, M. D. Third edition. With 571 illustrations. 1913. 8°. 742 pages. P. Blakiston's Son & Co., Philadelphia.

Malaria Etiology, Pathology, Diagnosis, Prophylaxis, and Treatment. By Graham E. Henson, M. D. With an introduction by Charles C. Bass, M. D. Twenty-seven illustrations. 1913. 8°. 190 pages. C. V. Mosby Company, St. Louis.

Inebriety, its Source, Prevention, and Cure. By Charles Follen Palmer. [1913.] 12°. 109 pages. The Union Press, Philadelphia.

Eye-Strain in Everyday Practice. By Sydney Stephenson. 1913. 8°. 139 pages. Paul B. Hoeber, New York.

Practical Bacteriology, Blood Work and Animal Parasitology. Including Bacteriological Keys, Zoological Tables and Explanatory Clinical Notes. By E. R. Stitt, A. B., Ph. G., M. D. Third edition, revised and enlarged. With 4 plates and 106 other illustrations containing 513 figures. 1913. 12°. 408 pages. P. Blakiston's Son & Co., Philadelphia.

Metropolitan Asylums Board. Annual Report for the Year 1912. (15th year of issue.) Price 5/. 1913. 8°. 298 pages. Ben Johnson & Co., Ltd., London and York.

Stellar Motions. With Special Reference to Motions Determined by Means of the Spectrograph. By William Wallace Campbell, Sc. D., LL. D. 1913. 8°. 328 pages. Yale University Press, New Haven; Henry Frowde, London.

Saint Thomas's Hospital Reports. New Series. Edited by Dr. J. J. Perkins and Mr. C. A. Ballance. Vol. XL. 1913. 8°. 217 pages. J. & A. Churchill, London.

Department of Neurology. Harvard Medical School. Vol. V. 1912. 8°. Boston, Mass.

Studies Concerning Glycosuria and Diabetes. By Frederick M. Allen, A. B., M. D. 1913. 8°. 1179 pages. W. M. Leonard, Boston.

Surgery of the Vascular System. By Bertram M. Bernheim, A. B., M. D. With 53 illustrations in text. [1913.] 8°. 104 pages. J. B. Lippincott Company, Philadelphia and London.

Bellevue and Allied Hospitals. City of New York. Eleventh Annual Report. January 1, 1912, to December 31, 1912. [1913.] 8°. 154 pages. M. B. Brown, New York.

A Manual of Otology. By Gorham Bacon, A. B., M. D. Sixth edition, revised and enlarged. With 164 illustrations and 12 plates. 1913. 8°. 536 pages. Lea & Febiger, New York and Philadelphia.

Hospital of the Protestant Episcopal Church in Philadelphia. Medical and Surgical Reports of the Episcopal Hospital. Volume I. 1913. 8°. 406 pages. Wm. J. Dornan, Philadelphia.

The Diseases of Children. By Henry Enos Tuley, M. D. With one hundred and six engravings and three colored plates. Second revised edition. 1913. 8°. 684 pages. C. V. Mosby Company, St. Louis.

The Doctor in Court. By Edwin Valentine Mitchell, Ll. B. [1913.] 12°. 152 pages. Rebman Company, New York.

The Microtomist's Vade-Mecum. A Handbook of the Methods of Microscopic Anatomy. By Arthur Bolles Lee. Seventh edition. 1913. 8°. 526 pages. P. Blakiston's Son & Co., Philadelphia.

Studies in Cancer and Allied Subjects. The Study of Experimental Cancer. A Review. By William H. Woglom, M. D. Conducted under the George Crocker Special Research Fund at Columbia University. Vols. I, III, and IV. 1913. Fol. 288 pages. Columbia University Press, New York.

A Treatise on the Diseases of Women. By Palmer Findley, B. S., M. D. Illustrated with 632 engravings in the text and 38 plates in colors and monochrome. 1913. 8°. 954 pages. Lea & Febiger, Philadelphia and New York.

The Principles and Practice of Gynecology. By E. C. Dudley, A. M., M. D. Sixth revised edition. With 439 illustrations and 24 full-page plates in colors and monochrome. 1913. 8°. 795 pages. Lea & Febiger, Philadelphia and New York.

Diagnosis of the Malignant Tumors of the Abdominal Viscera. By Professor Rudolph Schmidt. Authorized English version by Joseph Burke, Sc. D., M. D. [1913.] 4°. 361 pages. Rebman Company, New York.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XXXI. Edited by J. Alfred Scott, M. A., M. D., F. R. C. S. I. 1913. 8°. XL + 498 pages. John Falconer, Dublin.

Protein Split Products in Relation to Immunity and Disease. By Victor C. Vaughan, M. D., LL. D., Victor C. Vaughan, Jr., M. D., A. B., and J. Walter Vaughan, M. D., A. B. Illustrated. 1913. 8°. 476 pages. Lea & Febiger, Philadelphia and New York.

Bulletin of Iowa Institutions. (Under the Board of Control.) Published Quarterly. Volume XIV, 1912. 8°. 364 pages. Des Moines, Iowa.

Problems of Genetics. By William Bateson, M. A., F. R. S. With illustrations. 1913. 8°. 258 pages. Yale University Press, New Haven; Humphrey Milford, London; Oxford University Press.

A Clinical Manual of Mental Diseases. By Francis X. Dercum, M. D., Ph. D. 1913. 8°. 425 pages. W. B. Saunders Company, Philadelphia and London.

The Elements of Bacteriological Technique. By J. W. H. Eyre, M. D., M. S., F. R. S. (Edin.). Second edition, rewritten and enlarged. 1913. 8°. 518 pages. W. B. Saunders Company, Philadelphia and London.

Diet in Health and Disease. By Julius Friedenwald, M. D., and John Ruhräh, M. D. Fourth edition, thoroughly revised and enlarged. 1913. 8°. 857 pages. W. B. Saunders Company, Philadelphia and London.

Obstetrics for Nurses. By Joseph B. DeLee, A. M., M. D. Fourth edition, thoroughly revised. 1913. 12°. 508 pages. W. B. Saunders Company, Philadelphia and London.

Essentials of Prescription Writing. By Cary Eggleston, M. D. 1913. 16°. 115 pages. W. B. Saunders Company, Philadelphia and London.

Diseases of Women. Medical and Surgical Gynecology. By Charles A. L. Reed, A. M., F. C. S., M. D. With four hundred and forty-eight illustrations in the text. 1913. 8°. 944 pages. D. Appleton and Company, New York and London.

The Nervous and Chemical Regulators of Metabolism. Lectures. By D. Noël Paton, M. D., B. Sc. 1913. 8°. 217 pages. Macmillan and Company, London.

Anatomy, Descriptive and Applied. By Henry Gray, F. R. S. A new American from the eighteenth English edition. Thoroughly revised and re-edited. With the Basle Anatomical Nomenclature in English by Robert Howden, M. A., M. B., C. M. Illustrated with 1126 engravings. 1913. 4°. 1407 pages. Lea & Febiger, Philadelphia and New York.

The National Association for the Study and Prevention of Tuberculosis. Translations of the Ninth Annual Meeting. Washington, D. C., May 8-9, 1913. 8°. 420 pages. Wm. F. Fell Company, Philadelphia.

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